

**EXPERIENCE, EPISODIC KNOWLEDGE AND JUDGMENT IN AN AUDIT
COMMITTEE MEMBER TASK: EXPERIMENTAL EVIDENCE**

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Dedicated to My Parents

Who Gave me the Experience of Unconditional Love

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SUMMARY

I conduct experiments to investigate how episodic knowledge obtained from prior experience as an auditor or a manager affects audit committee members' judgment in supporting the auditor in a disagreement with management. This paper sheds light on the advantage of first-hand accounting-related experience in the important oversight task. It also brings to bear the potential benefit from direct manager experience as claimed by researchers and regulators. I find that the episodic knowledge obtained from prior experience as an auditor, especially the experience of having been a diligent auditor, strengthens the degree of auditor support of participants in the role of an audit committee member. By contrast, the effect of episodic knowledge from first-hand experience as a manager on the likelihood of auditor support varies with the manager type. While the episodic knowledge acquired from direct experience as an aggressive manager augments the level of auditor support, such knowledge attained by prior experience as a conservative manager has no significant effect.

CHAPTER 1

INTRODUCTION

Effective audit committees protect shareholders' interest by playing an oversight role to ensure reliable financial reporting, internal controls, and risk management (DeZoort et al. 2002). The Blue Ribbon Committee (BRC 1999) suggests that audit committee members have candid discussions with auditors and management regarding issues implicating judgment and impacting the quality of financial reports. Moreover, SAS No. 90, *Audit Committee Communications*, requires that the auditor communicate with the audit committee on various issues including disagreements with management. Given the grey area in professional standards, such as Generally Accepted Accounting Principles (GAAP), reconciling auditor-management disagreements becomes an important audit committee task.¹ This paper attempts to shed light on whether and how episodic knowledge gained via direct experience in the role of an auditor or a manager affects audit committee members' conflict resolution judgments.

Researchers in various disciplines use different distinctions to describe knowledge, but one of the most useful distinctions in the audit-judgment literature is based on research on long-term memory (Libby 1995). Previous studies (e.g., Anderson 2000 and McDaniel et al. 2002) suggest that the variations in judgment and decision making between experts and novices result from knowledge differences that relate to episodic and semantic memory. Episodic memory stores particular experiences (episodic knowledge), while semantic memory stores knowledge about facts, concepts, meanings,

¹ Extant experimental studies on the audit committee's role focus on audit committee performance reconciling auditor-manager disagreements (e.g., Knapp 1987; DeZoort and Salterio 2001; DeZoort et al. 2003; DeZoort et al. 2008).

and relations (semantic knowledge). In general, people acquire both kinds of knowledge through first- and second-hand encounters. The former refers to direct experience with relevant problems, whereas the latter includes education, training, reading books, and discussion with others.

Investigating whether and how episodic knowledge obtained from first-hand experience as an auditor or a manager affects audit committee members' judgment in reconciling disagreements is critical for several reasons. First, my paper has implications for the definition of financial expertise, which was considered one of the most controversial features of the proposed Sarbanes-Oxley Act (SOX) rules (SEC 2003). The SEC initially proposed a definition of financial expertise that commanded prior accounting-related work experience.² The requirement of accounting-specific experience, however, led to intense criticism that the definition was too restrictive and excessively limited the pool of qualified directors (e.g., Olson 1999 and Kirk 2000). As a compromise, the SEC adopted a broader definition of financial expertise which shifted the focus from accounting-related experience to an understanding of GAAP, financial statements, and internal control over financial reporting. This change allows directors who only possess accounting-related semantic but not episodic knowledge to serve as a financial expert. However, the question of whether accounting-specific experience, which is a critical source of episodic knowledge, should be a requirement for financial experts has been left open.

Researchers typically categorize financial experts into accounting and non-accounting financial experts based on whether they have accounting-related work experience. The major difference between the two groups lies in the level of first-hand

² Accounting-related experience refers to either public or corporate accounting experience.

accounting experience. Accounting financial experts can acquire knowledge through direct work experience as well as through second-hand encounters, while the learning opportunity of non-accounting financial experts is limited to second-hand experience only. Although the difference in first-hand accounting experience may lead to both episodic and semantic knowledge differences, I expect a larger gap in episodic than semantic knowledge between accounting and non-accounting financial experts. After all, a large portion of semantic knowledge can be acquired through education and other second-hand encounters. Episodic knowledge, on the other hand, is mainly obtained from first-hand experiences, which are generally much richer than second-hand encounters (Ryan et al. 2008). If episodic knowledge obtained from direct experience in the accounting-related role enhances audit committee members' judgment, first-hand accounting experience could be considered a valuable attribute of financial expertise.

Second, my paper extends the stream of research examining the importance of accounting-related experience in audit committee tasks. Extant literature indicates that the presence of an expert with accounting experience leads to lower levels of accrual earnings management (Bedard et al. 2004, Carcello et al. 2006, and Dhaliwal et al. 2006), earnings restatement (Abbott et al. 2004), and fraud (Farber 2005). Moreover, accounting financial expertise improves monitoring mechanisms by enhancing accounting conservatism (Krishnan and Visvanathan 2008) and internal control quality (Krishnan 2005). On the other hand, a number of studies fail to find evidence of an association between audit committee effectiveness and non-accounting financial expertise (e.g., Davidson et al. 2004, DeFond et al. 2005, Dhaliwal et al. 2006, and Krishnan and Visvanathan 2008). While these findings underscore the importance of accounting

experience to the audit committee's role, the effects of episodic and semantic knowledge are entangled in the studies. After all, accounting financial experts may have greater semantic as well as episodic knowledge (from their educational background and work experience in accounting) than the non-accounting counterparts. This paper is the first to examine the potential effect of episodic knowledge on audit committee effectiveness, after controlling for semantic knowledge.

Third, my paper is the first to provide behavioral evidence that prior experience in the manager role can augment audit committee members' judgment. Several practitioners and researchers have questioned the need of financial expertise for an effective audit committee. For instance, AIMR (1999) and Olson (1999) argue that practical management experience could be more important than financial expertise. Nevertheless, management experience has not received due attention in research on audit committees thus far.

Extant research indicates different incentives among managers and auditors. Managers' may have an incentive to report aggressively or conservatively (e.g., see Cuccia et al. 1995). Apparently, a large amount of research (e.g., Brown 2001 and Bartov et al. 2002) documents management's propensity to avoid negative earnings surprises and to reach certain earnings targets by managing earnings. Despite the importance of their role in mitigating aggressive reporting, auditors generally face an imbalance of power, relative to management, in the audit context. For example, overzealous clients may demand auditors to act in management's economic interests (Knapp 1987). If the auditor refuses to cater to management's interests, they may lose the client. Hackenbrack and Nelson (1996) discuss the conflicting incentives of the auditor. On one hand, the auditor

may encounter financial and reputation loss if permitting overly-aggressive reporting. On the other hand, auditors' need to retain the client may lead them to accept an overly-aggressive report.³ Hence, I distinguish episodic knowledge of a diligent auditor from that of a lax auditor and episodic knowledge of an aggressive manager from that of a conservative manager.

Knapp (1987) indicates that some audit failures occur because audit committee members lack adequate sensitivity to management's pressure on the auditor. This may result from deficiency of necessary knowledge for their oversight role. For instance, Archambeault and DeZoort (2001) find that companies that made suspicious auditor switches had fewer audit committee members with experience in accounting, auditing, or finance. Therefore, consistent with prior research (e.g., DeZoort and Salterio 2001, DeZoort et al. 2003 and 2008), my study uses a level of auditor support in auditor-manager disagreements as a proxy for audit committee effectiveness.

My particular interest is in bringing to bear the impact of episodic knowledge obtained from prior experience as an auditor or a manager on a level of auditor support during auditor-manager disagreements. I do not focus on technical knowledge in financial reporting, which is an example of semantic knowledge generally attained by second-hand experience (e.g., how to account for a transaction). Instead, I concentrate on the strategic interplay between an auditor and a manager in financial reporting, which requires the anticipation of the other party's actions. Certain kinds of experience may provide relevant episodic knowledge that promotes understanding of the strategic tensions between the

³ To mitigate management's influence on the auditor, SOX Section 301(2) mandates that the auditor report directly to the audit committee. The rule shifts the authority to appoint, evaluate, and select the auditor from management to the independent audit committee. Thus, the auditor's objectivity in constraining overly aggressive behavior should increase post-SOX.

auditor and the manager. Hence, the retrieval of such episodic knowledge may affect a degree of auditor support of an audit committee member.

I conducted an experiment, which entails two tasks, to examine the impact of episodic knowledge of an auditor or a manager on audit committee members' propensity to support the auditor. The experiment employs a $2 \times 2 + 1$ between-participants design that varies (1) whether participants in the role of an audit committee member have prior experience as an auditor or a manager and (2) the payoff for detected aggressive reporting behavior in the participants' prior experience, plus a control group (no experience). In the first task, undergraduate and graduate students (excluding those in the control group) took the role of auditor or manager to obtain relevant episodic knowledge. In the second task, all participants took the role of an audit committee member reconciling auditor-manager conflicts. Using an experiment allows me to manipulate the level of episodic knowledge, while controlling for the level of semantic knowledge. This would be extremely difficult to accomplish outside the laboratory.

To examine how varying episodic knowledge obtained from different experience affects participants' auditor support in the audit committee task, I divide participants into five groups: (1) an aggressive manager, (2) a conservative manager, (3) a diligent auditor, (4) a lax auditor, and (5) a control group (no direct experience). I first employ a classification by their incentives, followed by a classification by their actions. My experimental results indicate that episodic knowledge from direct experience as an auditor, especially the experience as a diligent auditor, leads to a greater level of auditor support. Furthermore, when the classification by the actions is used, episodic knowledge of a diligent auditor results in greater auditor support than that of a lax auditor. While

episodic knowledge gained from experience as an aggressive manager enhances auditor support, the knowledge from the conservative manager's experience does not. Therefore, my study shows that the presence of an audit committee member with direct experience as an auditor or an aggressive manager can enhance audit committee judgment.

Lastly, this study contributes to accounting practice and literature by shedding light on the linkage between episodic knowledge acquired from experience in the role of an auditor or a manager and audit committee performance. This analysis is important because while most financial experts have prior work experience in a management position, only accounting financial experts have accounting work experience. The current definition of a financial expert encompasses non-accounting financial experts such as CEOs and Presidents. These non-accounting experts may possess episodic knowledge gained from direct experience as a manager but not episodic knowledge obtained in the auditor experience.

My results suggest the potential benefit of appointing an accounting financial expert, especially those with experience as a diligent auditor. Hence, the original definition of audit committee financial expertise is not without a merit. However, whether the regulator should revert back to the original definition also depends on additional cost that comes with the stricter definition. My results also indicate that appointing a non-accounting financial expert can be fruitful if he/she has experience of having been an aggressive manager. However, keep in mind that my study only concentrates on episodic knowledge pertaining to the nature of auditing, but not other kinds of technical (semantic) knowledge regarding accounting or management.

This study contributes to audit judgment research pertaining to the transfer of knowledge acquired from direct experience as an auditor to other roles. For instance, Bowlin et al. (2009) find that prior experience as an auditor, especially the experience of having been a diligent auditor, lower managers' aggressive reporting behavior when penalties for detected aggressive reporting are large. My paper indicates that direct experience as an auditor also enhances judgment in the audit committee task. Moreover, it extends a stream of research on the impact of accounting knowledge and experience on auditor support in the audit committee task. In particular, it provides evidence supporting the merit of episodic knowledge attained by direct experience as an auditor, in addition to the conventional accounting and auditing textbook knowledge. It also calls more attention to direct management experience in accounting research.

The remainder of the paper proceeds as follows. Chapter 2 discusses audit committee financial expertise and reviews prior literature. Chapter 3 provides background knowledge on experience and episodic knowledge. Chapter 4 develops hypotheses. The preliminary study is introduced in Chapter 5, followed by the main study in Chapter 6. Chapter 7 concludes the paper.

CHAPTER 2

BACKGROUND AND LITERATURE REVIEW

This chapter provides background information on audit committee financial expertise and related literature. It is organized as follows: Chapter 2.1 traces the history of audit committees and entails their roles and responsibilities. Chapter 2.2 discusses the requirement of financial expertise, especially the issues involving its definition. Lastly, Chapter 2.3 synthesizes the extant literature on audit committee financial expertise.

2.1 Development of Audit Committees

2.1.1 Historical Perspective

The development of audit committees can be traced back as early as 1940, when the SEC endorsed the audit committee concept as a potent function in ensuring the accuracy of traded companies' financial reporting. The original audit committee concept suggests that the board of directors in general and the audit committee in particular are responsible for setting a control environment to discipline unusual business practices, aggressive accounting methods, and violations of the company's code of business conduct. Given such a role and responsibilities, audit committees should be composed of outside directors, who are independent on the firm. In 1972, the SEC encouraged all publicly held companies to establish audit committees composed of outside directors and two years later demanded public disclosure of whether audit committees were independent.

In 1977, the New York Stock Exchange (NYSE) required boards of directors of listed companies to appoint an audit committee composed of outside directors; the National Association of Securities Dealers (NASDAQ) and American Stock Exchange (AMEX) subsequently adopted the requirement in the 1980s. Nevertheless, early audit committees did not prove to be adequate watchdogs against fraud. Even in the late 1980s, most audit committee charters, listing the audit committee's job description, were only two paragraphs long and did not include substantive responsibilities. To emphasize the importance of the audit committee, the Committee of Sponsoring Organizations (COSO) issued the Treadway Report in 1987. The Treadway Report was the first formal documentation setting standards for audit committee responsibilities based on best practices rather than common practices. Significant oversight tasks, including responsibilities to prevent fraudulent financial reporting, were assigned to the audit committee. The report also suggested minimum frequencies for important tasks of the audit committee: e.g., reviewing financial statements (quarterly) and reviewing management compliance with the corporate code of conduct (annually).

In 1988, due to the increased oversight responsibility, the American Institute of Certified Public Accountants (AICPA) issued SAS No. 61, *Communication with Audit Committees*, addressing communications between the external auditor, the audit committee, and management of a company. Specifically, management has to keep the audit committee informed of both routine and sensitive information and the external auditor should raise critical concerns regarding financial reporting with the audit committee. In 1992, COSO issued *Internal Control-Integrated Framework* to develop a common definition of internal control and to provide guidance for evaluating internal

control effectiveness. In 1993, the Public Oversight Board (POB) issued the first POB report, *In the Public Interest-A Special Report*. The report described the independent audit as a “public watchdog” function and encouraged independent accountants to help audit committees understand their responsibilities. In addition, audit committees should request management letters, including recommendations to help improve the internal controls of the corporations, from the external auditor. The second POB report issued in 1995, *Directors, Management, and Auditors-Allies in Protecting Shareholder Interests*, further accentuated the importance of informed discussions between the audit committee and the external auditor.

Despite a number of initiatives, it became clear in the late 1990’s that audit committees did not provide a sufficient guard against fraudulent financial reporting, earnings management, and creative accounting practices. In 1998, the Blue Ribbon Committee (BRC) was established to study how audit committees could be more effective. The BRC recognized that the audit committee plays a vital role in ensuring high-quality financial reporting and recommended that companies establish independent audit committees with a minimum of three financially literate members and one financial expert. The SEC and other self-regulating organizations adopted the requirement for independent audit committee members in 1999. However, the requirement of the financial expert was adopted only by the major U.S. stock exchanges.

In 2002, Congress passed the Sarbanes-Oxley Act (SOX) as a response to heightened awareness of management financial fraud, especially from the downfalls of Enron Corp. in 2001 and WorldCom Inc. in 2002. As a result, the independence of audit committee members became a requirement by statute. The audit committee financial

expert requirements were finalized and issued in 2003, requiring public disclosure of whether public companies have a financial expert on the audit committee of their board of directors, with the expectation that financial expertise on the audit committee will strengthen corporate governance and protect shareholders. Moreover, recent changes in listing standards of the major U.S. stock exchanges require not only that audit committees be composed of at least three independent, financially literate directors but also require at least one member who possesses financial expertise on the committee. Until now, SOX has been the major regulation that drives the composition, roles, and responsibilities of audit committees in the U.S.

2.1.2 Audit Committee Roles and Responsibilities

The role and responsibilities of audit committees have developed over time, from an originally loose concept to obligations and fiduciary duties by statute. Since the passage of SOX, the role of audit committees has been to guard against management fraud by monitoring the financial reporting function and internal controls of an organization. The fundamental responsibilities of an audit committee include monitoring the financial reporting process to ensure timely and accurate reporting, minimizing problems arising from conflict-of-interest, and cooperating with the external auditor, the internal auditor and management.

According to the BRC, audit committees are not to prepare financial statements but rather are responsible for monitoring and overseeing the financial reporting process. They must ensure that proper internal controls are established, understand the company's risk assessment and be informed of critical accounting choices and decisions. Audit

committee members should meet regularly and as needed with external auditors, the company's management, internal auditors and other personnel responsible for the company's financial reporting process and internal controls. Information regarding discussions on financial statements and related judgments must also be included in a company's proxy statement.

Under SOX (Section 301), audit committees are responsible for the appointment, compensation, and monitoring of the outside auditors. They have to be aware of possible conflicts-of-interest and other provisions imposed by SOX, especially that a lack of independence of the accounting firm should prohibit the firm from being appointed. For instance, an accounting firm cannot provide service if one of the company's senior management was employed by that accounting firm in the prior year. In addition, the PCAOB identifies certain non-audit services that would preclude an audit committee from approving an audit firm: e.g., bookkeeping, financial information systems design and implementation, and internal audit services. This governance structure protects financial reporting integrity by isolating the external auditor from possible management pressure.

An audit committee is not a stand-alone functioning group. Audit committee members must communicate with management and employees as well as internal and external auditors. The audit committee must disclose all information pertaining to the financial reporting process to the external auditor. Working together, audit committee members and the external auditor determine if the adopted accounting principles and choices are consistent with industry standards or in compliance with GAAP. Moreover, SOX requires audit committee members and management to meet regularly to discuss the

treatment of complex transactions and any significant internal control deficiencies. Audit committee members also play a major role in reconciling disputes between the external auditor and management regarding accounting treatments.

In sum, an audit committee is expected to perform several duties leading to financial reporting integrity; their main tasks involve accounting and audit matters, internal control, and auditor independence. The oversight of the financial reporting process can be considered the audit committee's most important responsibility. Most audit committee members aim to spend more time on accounting judgments and estimates, and identify it as their top priority, followed by the oversight of risk management (KPMG 2006). In addition, audit committee members interact and receive support from management, auditors, and other employees. Audit committees request input such as pre-meeting materials, have discussions with others, raise notable concerns and disclose relevant information in the meetings.

2.2 Audit Committee Financial Expertise

The U. S. Securities and Exchange Commission (SEC) and major stock exchanges adopted a recommendation from the BRC that all audit committee members be financially literate and at least one member demonstrate a higher level of financial reporting knowledge, referred to as financial expertise (BRC 1999). Hence, financial experts must possess financial literacy, described as the ability to read and understand fundamental financial statements, plus extra knowledge pertaining to financial reporting and financial statements that will improve the audit committee's effectiveness.

The controversial definition of financial expertise had been intensely disputed before the SEC stipulated the final rules. According to the originally proposed SEC rule (November 2002), a financial expert is an audit committee member who, through education and experience, possesses the following attributes: (1) an understanding of GAAP and financial statements, (2) experience applying GAAP principles in connection with the accounting for estimates, accruals, and reserves, (3) experience preparing or auditing financial statements generally comparable to the company's, (4) experience with internal controls and procedures for financial reporting, and (5) an understanding of audit committee functions. This definition of financial expertise commands prior accounting-related experience of a financial expert, such experience as a public accountant, auditor, principal financial/accounting officer, or controller. Since the best practices suggest that audit committees are responsible for duties that may require a high degree of accounting sophistication, this accounting-specific definition of financial expertise may very well be justified at first glance.

However, narrowly defining financial expertise as accounting-specific expertise became one of the most controversial features of the newly proposed SOX rules (SEC 2003). The chief arguments against this definition were that the focus on the accounting-specific expertise (experience) was too restrictive and terribly limited the pool of qualified directors. Due to intense criticism, the SEC compromised by adopting a broader definition of financial expertise (March 2003). The final rule defines a financial expert as an audit committee member who possesses the following attributes: (1) an understanding of GAAP and financial statements, (2) an ability to assess the general application of GAAP in connection with the accounting for estimates, accruals, and reserves, (3)

experience preparing, auditing, analyzing or evaluating financial statements generally comparable to the company's, (4) an understanding of internal controls and procedures for financial reporting, and (5) an understanding of audit committee functions.

As opposed to the original definition, the new definition concentrates more on knowledge (understanding) rather than first-hand experience. The rule also specifies that, in addition to direct accounting experience, a member may gain financial expertise through experience supervising employees with financial reporting responsibilities, overseeing the performance of companies, and other relevant experience. Clearly, this new definition has widened the pool of qualified members with the intent to subdue the negative reaction to the more restrictive original definition.

The crucial question pertaining to the definition of an audit committee financial expert is whether the SEC compromised too much for quantity in lieu of quality. Despite the definition suggested by the final version of SOX being enforced, critics of the definition argue that the new definition may be too broad. For instance, this definition extends the qualified experts to encompass company presidents and CEOs because by virtue of their positions, they are supervisors of financial and accounting officers, and overseers of company performance. Even the SEC is reluctant to explicitly state that presidents and CEOs qualify as financial experts and thus defer the determination of a financial expert to the board of the appointing company (SEC 2003). Therefore, research on whether financial experts qualified by the arguably loose definition leads to the improvement of audit committee performance, and whether the level of improvement is comparable to that generated from financial experts qualified based on the original definition, will shed light on the justification of the currently adopted definition.

The SEC's final rule also requires a company to disclose whether it has appointed at least one audit committee financial expert in its annual report. If so, the company must disclose the expert's name and whether the expert is independent. If no expert is appointed, the company must explain why not. Thus, researchers have searched through companies' proxy statement for information on whether a company has an audit committee financial expert based on the final rule's definition. Many researchers have gone further by reading through a financial expert's biography in the proxy statement to determine whether the expert would be classified as such had the original definition of an audit committee financial expert been adopted. Most likely, financial experts with prior work experience in accounting and auditing such as principle accounting officers, controllers, public accountants, and auditors would be qualified regardless of which definition is used and thus are labeled "accounting financial experts." In contrast, experts who do not fit in the original definition are generally called "non-accounting financial experts."

Over the past decade, a number of researchers have conducted empirical research to study the impact of financial expertise. Most researchers code financial expertise variables as dummy variables (0 or 1) based on whether a company has at least one financial expert, potentially because companies are not required to disclose the names of any additional audit committee financial experts beyond the first one. The dummy coding treatment may have been appropriate in the past since most companies had only one audit committee financial expert. However, this treatment implies the indifference between having one financial expert and several experts on the audit committee. With the growing complexity of financial reporting issues and associated risks, audit committees of large

companies tend to have more than one audit committee financial expert (KPMG 2006). This provides a good opportunity to measure the incremental value of having multiple financial experts on the same audit committee by coding financial expertise based on the number of financial experts.

2.3 Documented Effects of Financial Expertise

Despite the potential benefits to the firm portrayed in the previous section, the requirement of financial expertise does not come without cost. The major hurdles include the difficulty of finding qualified audit committee members and that qualified individuals may be hesitant to serve on the audit committee due to the increased legal exposure for designated experts (Zacharias 2000). Firms may also have to pay higher compensation to attract qualified individuals. Hence, empirical evidence documenting the benefits of financial expertise to the firm is necessary to justify financial expertise.

Because audit committees are responsible for scrutiny of financial reports, financial expertise is expected to improve audit committee effectiveness (e.g., POB 1993 and 1994). In addition, matters reported to audit committees are usually of a technical nature and thus require sufficient accounting and auditing knowledge for effective oversight (Bull and Sharp 1989). An inclusion of a financial expert should increase the amount of financial reporting oversight provided by the audit committee. The greater monitoring of the financial reporting process should lead to improvements in the corporate governance process, and ultimately higher quality financial reports. Audit committee effectiveness has been measured using various proxies pertaining to external financial reporting as well as internal control systems.

2.3.1 Degree of Auditor Support

DeZoort and Salterio (2001) use short knowledge tests to measure financial-reporting knowledge⁴ and audit-reporting knowledge⁵ of audit committee members. They find that higher corporate governance experience⁶ and audit-reporting knowledge are associated with greater support for the auditor in the dispute with client management. On the other hand, they find no relationship between financial-reporting knowledge and audit committee member judgment. Although the paper focuses on different types of knowledge as components of financial literacy instead of financial expertise *per se*, the results shed some light on the importance of the definition and measurement of financial expertise, consistent with the concern of the National Association of Corporate Directors (NACD 2002).

DeZoort et al. (2003) examine audit committee member support for proposed audit adjustments. Using audit committee members with various backgrounds, they document greater support when management's incentives to manipulate financial reports are high (e.g., near the fiscal year end) and when the auditor consistently argues for adjustment. Interestingly, they also find a counterintuitive result that audit committee members with experience in public accounting are less likely to recommend adjustment. Based on written explanations, audit committee members with CPA experience seems to view the proposed judgment in their experiment as immaterial.

They rerun the experiment in 2008 to shed light on the impact of SOX on audit committee member support to the auditor (DeZoort et al. 2008). Compared to 2003 (pre-

⁴ Financial-reporting knowledge refers to an understanding of how business activities are presented in the financial statements and the ability to analyze these statements.

⁵ Audit-reporting knowledge refers to an understanding of the nature and the purposes of the financial statement audit.

⁶ Corporate governance experience refers to experience as independent directors.

SOX), audit committee member support for an auditor-adjustment in 2008 (post-SOX) is significantly higher. Furthermore, they find that the increase in support is attributable to audit committee members with CPA experience. The results suggest that audit committee members, especially those with public accounting experience, feel more responsible for resolving the accounting issue and are more conservative in the post-SOX period.

2.3.2 Corporate Governance and Internal Controls

Some researchers use the quality of corporate governance and internal controls as a benchmark for audit committee effectiveness. Financial expertise is expected to strengthen corporate governance by enhancing the board's ability to protect shareholder interests, thereby increasing shareholder value. Recent regulations, including SOX requirements, have emphasized good internal control as an important tool for achieving high-quality financial reporting. The quality of an entity's internal control is a function of the quality of its internal control environment and other non-governance-related controls, so there should be a positive association between audit committee quality and internal control quality.

DeZoort (1998) finds that audit committee members who had internal control oversight experience made internal control judgments more like auditors than did members without such experience. Abbott et al. (2004) find that firms with financial experts on audit committees are less likely to restate earnings or commit fraud. Farber (2005) finds that firms that committed frauds have fewer financial experts on the audit committee, relative to non-fraud firms. Krishnan (2005) compares audit committee characteristics of companies (1) disclosing internal control problems pointed out by the

predecessor auditors and (2) companies changing auditors but not disclosing internal control problems. She finds that the existence of internal control problems is associated with the number of audit committee members with financial expertise and the relationship persists at both severity levels of the internal control problems: reportable conditions and material weaknesses. Notwithstanding the limited samples, the results shed some light as to the possibility that financial expertise enhances the audit committee quality, which in turn augments internal control quality.

Extending this line of research, Wallace et al. (2004) and DeFond et al. (2005) examine stock market reaction to the appointment of new directors with financial expertise. An appointment of a financial expert should result in higher protection of shareholders so a positive market reaction is expected when the appointment is publicly announced. Wallace et al. (2004) report a significant positive stock price reaction to an appointment of new members of audit committees who have financial expertise. They conduct further analysis of financial expertise breaking it down into three types of experience: (1) auditing and audit firm experience,⁷ (2) corporate financial management experience,⁸ and (3) financial statement analysis experience.⁹ The results show that shareholders may perceive auditing and audit firm experience as more important relative to corporate financial management and financial statement analysis experience.

⁷ A director has auditing and audit firm experience if the director was employed by a CPA firm or worked as an audit consultant.

⁸ A director has corporate financial management experience if the director was a principal manager with financial oversight responsibility, including chief executive officer, chief financial officer, vice president of finance, corporate controller, or chief accounting officer.

⁹ A director has financial statement analysis experience if the director was an executive in the investment, investment banking, or commercial banking industry, or worked as financial consultant or college professor in finance or accounting.

DeFond et al. (2005) disaggregate financial experts into (1) accounting financial experts, which are narrowly defined as in the original SEC proposal, and (2) nonaccounting financial experts, which are broadly defined based on the definition from the final version of the SEC rule (including presidents and CEOs). They find significant and positive average three-day cumulative abnormal returns surrounding the announcement of the appointment of accounting financial experts to audit committees. However, the comparable returns for firms appointing non-accounting financial experts and non-experts are not significant. Therefore, it is tenable that the specialized skills possessed by accounting financial experts make the directors more effective in overseeing the financial reporting process and ensuring high-quality financial reporting. Ultimately, the appointment of an accounting financial expert leads to an increase in stock price due to improved corporate governance as well as a decrease in information risk. The finding implies that only accounting financial expertise enhances corporate governance and supports the narrower definition of financial expertise. Nevertheless, keep in mind that stock reaction observed in the study reflects perception toward financial reporting quality, but not necessarily the actual quality.

2.3.3 Earnings Quality

A great deal of research on financial expertise uses quality of reported earnings as a measure of audit committee effectiveness. Firms may manage earnings in order to mislead stakeholders about their underlying economic performance (Healy and Wahlen 1999). Effective audit committees are less likely to permit aggressive earnings management (BRC 1999). Bedard et al. (2004) examine the association between SOX

requirements, including financial expertise, and abnormal accruals as a proxy for earnings management activity. They find that the presence of at least one audit committee member with financial expertise is associated with a lower likelihood of aggressive earnings management. Furthermore, Antle and Nalebuff (1991) suggest that auditors exhibit an asymmetric loss function and thus are more likely to require adjustments to positive than negative accruals. Income decreasing accruals are often regarded as indicative of conservative reporting behavior. Hence, earnings management is further broken down into two categories: income-increasing and income-decreasing earnings management and the associations with expertise are studied separately. Bedard et al. (2004) find that unlike auditors, financial experts do not exhibit an asymmetric loss function and are concerned with both income-increasing as well as income-decreasing earnings management.

Carcello et al. (2006) extend this area of research by discerning among the different definitions of financial expertise and the interactions between having an audit committee financial expert and other corporate governance mechanisms. In contrast to Bedard et al. (2004), they study various types of financial experts separately: (1) accounting financial experts, (2) non-accounting experts who are senior business executives, and (3) other non-accounting financial experts. They also investigate the impact of financial expertise on real earnings management, in addition to accrual earnings management. Their findings indicate a significant relation between having a financial expert and a lower level of earnings management, but only in cases of accounting and other non-accounting financial experts. In addition, there is a positive association between financial expertise and real earnings management. The results

suggest that accounting financial experts may be effective in constraining accounting accruals earnings management so management engages in real activities management instead.

Dhaliwal et al. (2006) decompose the broad definition of financial expertise into accounting, finance, and supervisory expertise¹⁰ and test whether each type of financial expertise is associated with accruals quality, a proxy for earnings management. They presume that the higher the earnings management activities, the lower the financial reporting quality. Similar to Carcello et al. (2006), they only find a significant positive association between accounting expertise and accruals quality but fail to find a significant relation between other types of expertise and accruals quality. These results suggest that the current definition of financial expertise is too broad and future refinements are needed.

2.3.4 Conservatism

A considerable amount of research focuses on accounting conservatism as a means to gauge audit committee effectiveness. Conservatism is a component of transparency, which is generally considered as a desirable attribute of high-quality financial reporting (Francis et al. 2004).

Although DeFond et al. (2005) find a positive market reaction to the appointment of an accounting financial expert, the market reaction is only an expectation of value enhancement, not reflecting actual improvements resulting from the appointment (Engel 2005). Krishnan and Visvanathan (2005) examine a possible explanation for DeFond et

¹⁰ Supervisory expertise refers to expertise entailed in supervising the preparation of financial statements. Hence, a CEO or company president is deemed to have supervisory expertise.

al.'s (2005) finding by inspecting the association between financial expertise and accounting conservatism. Similar to DeFond et al. (2005), they measure audit committee expertise in three ways: (1) accounting financial experts, (2) non-accounting financial experts, and (3) non-financial experts. They find that conservatism is positively associated with accounting financial expertise, but not correlated with the other measures of expertise. Because of their accounting expertise and incentives to protect their reputation capital, audit committee members with accounting expertise may enhance conservatism by encouraging more effective monitoring. This notion provides an important link in understanding why the stock market reacts favorably to the appointing of accounting financial experts. Overall, the findings suggest that adopting a narrower definition of a financial expert is likely to improve the audit committee effectiveness.

2.3.5 No Significant Effect

Despite a great deal of evidence that documents the positive effects of financial expertise, some research fails to find significant effects. For example, Raghunandan and Rama (2003) examine an association between audit committee composition and the proportion of shareholders not voting for auditor ratification in the presence of high non-audit fee ratios. The goal is to see if the presence of a strong audit committee allays any loss of independence concerns arising from high levels of non-audit fees. SOX presumes that fees for non-audit services may compromise auditors' independence, leading to lower financial reporting quality, and thus bans some of these services for audit clients (SOX 2002). In addition, the SEC has asserted that auditor independence influences shareholder voting as well as investing decisions. However, it is possible that a strong

audit committee may mitigate problems arising from perceptions of weakened auditor independence. They find that having at least one member meeting SOX financial expertise definition on the audit committee is not associated with the proportion of shareholders not voting for auditor ratification in the presence of high nonaudit fees. Nevertheless, the insignificance of financial expertise in explaining shareholder votes may be due to the use of overly broad definition of financial expertise adopted by the stock exchanges. Furthermore, on average, only 1.48 percent of shareholders in the study voted against or abstained from auditor ratification so the study may lack economic substance and power.

Carcello and Neal (2003) examine the effects of audit committee characteristics on the likelihood of auditor dismissals. Prior research suggests that external auditors are more likely to be dismissed after the issuance of an unfavorable report. In order to induce reporting integrity, audit committees should in some cases protect external auditors from dismissals following such report issuance. Hence, management should be less likely to terminate the auditor following the issuance of a going-concern report if the audit committee embodies certain characteristics, such as financial expertise, that promote their objectivity. Carcello and Neal find that the likelihood of auditor dismissal after a going-concern report is increasing with the percentage of affiliated directors on the audit committee and the percentage of shares held by the committee. However, clients are less likely to dismiss the auditor in the presence of audit committee members with governance expertise.¹¹ No significant relation between the likelihood of auditor dismissal and the

¹¹ Governance expertise refers to the average number of directorship positions audit committee members hold in other public companies. A member's reputation is expected to suffer when the company fires its auditor after a going-concern report and members who sit on more boards will have more to lose.

members' financial expertise is found. Nonetheless, such results may be caused by the use of overly broad definition of financial expertise.

2.3.6 Complements and Substitutes of Financial Expertise

Even if financial expertise improves audit committee effectiveness based on the extant empirical evidence, it is debatable whether regulators and the stock markets should set requirements for financial expertise. SOX does not postulate the presence of financial experts on audit committees, but requires that all members be independent from the firm's management. Audit committees must oversee the accounting and financial reporting processes as well as the audit of financial statements. Similarly, the BRC and major U.S. stock exchanges strongly advocate certain audit committee characteristics including financial expertise.

For instance, the major U.S. stock exchanges now require that audit committees have at least three independent directors. The BRC (1999) recommends that audit committees be comprised of a minimum of three members and meet at least quarterly, while the NACD (2002) underlined the importance of diligence with the suggestion that audit committees have four half-day meetings each year. Therefore, it is possible that other audit committee characteristics and activities (e.g., independence, size, diligence, and time commitment) serve as complements or substitutes to the need of financial expertise on audit committee effectiveness. If there is substantial evidence that other audit committee characteristics serve as substitutes to financial expertise, the requirement of financial expertise on audit committee composition may impose an unnecessary burden to firms and would not be justified based on a cost-benefit analysis.

Current research investigates this issue by analyzing interactions between financial expertise and other audit committee characteristics in studies of the association between financial expertise and audit committee effectiveness. Most investigate the relationship between audit committee independence and financial expertise. DeFond et al. (2005) find that a positive market reaction to the appointment of accounting financial experts to audit committees is concentrated among firms with fully independent audit committees. Carcello et al. (2006) find that the negative relation between earnings management and financial expertise is stronger when the audit committee is 100 percent independent.

In addition to audit committee characteristics, the level of firm democracy may affect audit committee effectiveness. Governance mechanisms signal the level of firm democracy since more democratic firms are more likely to have governance mechanisms in place. These mechanisms may serve as a buffer to prevent the firm's management from interfering with the audit committee's functions so financial experts can exercise their expertise without the fear of disputes with management. DeFond et al. (2005) report that appointing accounting financial experts results in the positive market reaction only if the firms have strong corporate governance prior to the appointment. In addition, Dhaliwal et al. (2006) report that the positive association between audit committee accounting expertise and accruals quality is more pronounced for firms with strong audit committee governance.¹² The findings suggest that financial expertise is likely to complement strong governance because firms with stronger governance may be better at

¹² The strength of audit committee governance is proxied by a summary measure based on three audit committee characteristics: audit committee size, independence, and number of meetings. Dhaliwal et al. also examine the interactions between different types of financial expertise and the governance strength of the board, measured by board size, board independence, share ownership, and CEO-chair duality but do not find significant results.

channeling the financial expertise to enhance financial reporting quality, thereby increasing shareholder value.

It is also possible that the strength of other governance mechanisms partially or completely substitute for the need of financial expertise on audit committees. For instance, Carcello et al. (2006) discover that appointing accounting financial experts to firms with good corporate governance has no incremental effect on reducing earnings management. This result implies that a lack of financial expertise on the audit committee may be compensated for by other corporate governance mechanisms so the requirement of financial experts may not be necessary for firms that already have strong corporate governance.

2.3.7 Empirical Regularity

The majority of extant research finds that financial expertise significantly improves audit committee effectiveness. Evidence suggests that financial expertise leads to lower levels of accrual earnings management, earnings restatement and fraud, while enhancing accounting conservatism and internal control quality. However, it is still an open question whether financial expertise is a complement or substitute for other corporate governance mechanisms. Furthermore, some research fails to find evidence of an association between audit committee effectiveness and financial expertise when the broad definition of financial expertise suggested by the final version of SOX is used in the study. Particularly, accounting-specific expertise, as described in the SEC's original proposal, is a crucial component of financial expertise to the audit committee's role. In contrast, non-accounting financial expertise, as defined in the final version of the SEC

rule, is often not evident as a significant contributor to audit committee effectiveness.

Thus, research that sheds light on different facets of audit committee members'

knowledge and skills can be fruitful and potentially have implications on the definition of financial expertise.

CHAPTER 3

EXPERIENCE AND EPISODIC KNOWLEDGE

Expertise research, especially in psychology, has a long history. Early expertise studies emphasized general problem solving or reasoning skills. However, increasing evidence shows that a transfer of expertise across domains is rare. Therefore, despite its importance, general ability is not the only important factor that determines experts' performance. Most research in the last decade has shifted the focus from generic ability to the role of domain-specific knowledge. A large number of studies indicate that domain-specific knowledge is the main cause of experts' superior judgments and decisions.

Hoffman (1998) defines an expert as one with special skills or knowledge derived from domain-relevant experience. The knowledge acquired through experience enables experts to make accurate and reliable judgments, and perform their tasks effectively and efficiently, even in unusual circumstances. The relationship between expertise and knowledge allows researchers to define expertise on a continuum, with more knowledgeable people on one end (more expert-like) and less knowledgeable on the other end (Chi 2006). Hence, researchers can conduct experiments to compare the performance of participants who have obtained a specific level of knowledge relative to those with less corresponding knowledge to assess key facets of expertise in a particular domain.

Extant research concludes that the differences between experts and novices largely stem from differences in knowledge. There are many ways to categorize knowledge but a useful distinction commonly employed in past accounting research is

based on two types of long-term memory: episodic and semantic memory (Libby 1995). As proposed by Tulving (1983), episodic memory processes and stores information representing unique spatial-temporal contexts of a personally experienced event (or an episode). This form of knowledge (episodic knowledge) allows remembering or thinking about a past event and usually triggers personal, emotional recollection (Ryan et al. 2008). It tends to be in the form of visual images encoded from the actor's perspective (Conway 2008). For example, an auditor may remember a previous encounter with a client's executive. Elements such as meeting time, venue, the auditor, the executive and their interaction from the auditor's perspective comprise the episode. Once the episode is retrieved from episodic memory, the auditor can re-experience the encounter. This kind of knowledge allows individuals to use their knowledge of prior events to construct possible future scenarios, which are useful when making predictions.

Semantic knowledge differs from its episodic counterpart in several ways. First, semantic memory involves facts and knowledge about the world. Unlike the retrieval of episodic knowledge, semantic recollection is generally factual and lacking emotion or time-, place-, and self-reference (Ryan et al. 2008). Second, while episodic knowledge enables mental time travel by reliving past events and projecting them into the future, semantic knowledge largely benefits inferential and analogical reasoning (Suddendorf and Corballis 2008). The usefulness of each type of knowledge depends on task requirements: some tasks can be solved in several ways and some require an interaction of episodic and semantic knowledge. Third, while the acquisition of episodic knowledge typically requires first-hand (direct) experience, attainment of semantic knowledge is usually via second-hand (indirect) encounters such as reading facts from books or

listening to others. Although it is true that indirect experience can also be captured in an episode (e.g., an event in which a person is reading a book), such pallid episodes without personal or emotional attributes tend to fade away fast and may not be accessible or useful over time (Conway and Pleydell-Pearce 2000).

Prior research on audit committees mainly focuses on the benefit of semantic rather than episodic knowledge. For instance, DeZoort and Salterio (2001) find that higher audit-reporting semantic knowledge, measured using conceptual questions from auditing textbooks and professional accounting examinations, is associated with greater support of the auditor in disputes with client-management. Their finding suggests a significant benefit of semantic knowledge (e.g., concepts about auditors' responsibilities) to audit committee effectiveness, possibly due to better understanding of the tasks at hand.

McDaniel et al. (2002) study participants with significant and similar amounts of business experiences by dividing them into two groups: one with accounting/finance experience (financial experts) and another without such experience (financial literates). They suggest that financial experts possess more developed experience-based schemas for evaluating financial reporting quality, relative to financial literates. Although their findings bring to bear the importance of accounting/finance experience to audit committee effectiveness, the effects of episodic and semantic knowledge cannot be disentangled. After all, financial experts have higher levels of episodic *and* semantic knowledge than financial literates. My paper attempts to examine the potential effect of episodic knowledge on audit committee effectiveness, after controlling for semantic knowledge.

CHAPTER 4

HYPOTHESIS DEVELOPMENT

I investigate the effect of relevant episodic knowledge acquired through direct experience, on the audit committee member's propensity to support the auditor in auditor-manager disagreements. Professional standards (e.g., GAAP) sometimes use vague terms that are prone to exploitation. For instance, vague phrases or wording such as "realistic possibility", "probable", and "material" are commonly used to describe thresholds in disclosure rules (Cuccia et al. 1995). The manager who has an incentive to report aggressively may interpret a vague professional standard liberally or excessively push the materiality threshold to support his/her preferred position. On the other hand, the auditor may have an incentive to interpret the standard conservatively due to concern over legal and reputation loss. Even if the standard is precise, Cuccia et al. (1995) find that the manager compensates for the loss of latitude in interpreting the vague standard by aggressively interpreting evidence supporting their preferred position. Episodic knowledge obtained from prior direct experience in the role of auditor or manager may help audit committee members better understand the basis and the reasonableness of each side's position in conflicts regarding the interpretation of ambiguous evidence and obscure language.

Audit committee members who have audit experience have encoded (in long-term memory) personally experienced events in the auditor role. When facing auditor-manager disagreements, relevant pieces of knowledge would be retrieved and among them could be their past interactions with managers. These episodes enable episodic future thinking,

ability to project the self into the situation for anticipation of future states (Atance and O'Neill 2001). That is, for audit committee members with direct experience as an auditor, the episode involving auditor-manager interaction is encoded from the auditor's perspective. This allows them to re-experience being in the role of the auditor. Moreover, episodic future thinking should allow them to project what they would do if they were the auditor in the current conflict, based on past judgment and behavior in the encoded episode. This procedure is consistent with the theory of perspective taking (e.g., see Tversky and Kahneman 1974), which specifies that people use their prior knowledge and experience to simulate what others do in the same situation. Psychological research regards accurate perspective taking as a primary component of social interactions, such as business negotiations and group discussions.

Not only can cognitive states be recalled through the retrieval of an episode, emotions (e.g., how someone makes the subject feel) can be experienced in a recalled event. According to Tulving (1983), remembering (episodic knowledge) has affective components, but knowing (semantic knowledge) does not. These affective components could be critical in perspective taking. For example, Van Boven et al. (2000) find that equipping individuals with first-hand experience can help them take another person's perspective accurately when performing tasks involving people in different roles. However, the research suggests that acquisition of semantic knowledge alone is insufficient for successful perspective taking. It is tenable that people who are equipped with semantic knowledge alone could not be able to simulate emotional states of the person in the other role.

Episodic knowledge obtained from direct experience as an auditor should lead audit committee members to project themselves into the conflict at hand, adopt the auditor's perspective accurately, and, thus, understand how it feels to be in the auditor's shoes. In general, auditors need to have an attitude of professional skepticism, which is pervasive across tasks (Libby 1995). In addition, Choo and Trotman (1991) suggest that more experienced auditors display a higher level of professional skepticism. Audit committee members who can take the auditor's perspective accurately should empathize with the auditor's need to exhibit professional skepticism (e.g., to be attentive to the potential of the manager's bias). That is, the auditor has to be vigilant when the manager may have incentives to manipulate financial reports or to interpret obscure expressions in professional standards and fuzzy evidence aggressively. In a situation with a substantial degree of uncertainty, episodic knowledge allows one to reflect on prior experience and act accordingly: for instance, to be particularly vigilant or to avoid the point of danger (Baddeley 1993). Thus, episodic knowledge obtained through auditor experience should help audit committee members accurately simulate the mental state of the auditor in disagreements, resulting in more empathy towards the auditor.

In addition to cognitive and emotion states, one's actions are another major element in an episode. Because auditors are responsible for constraining managers' aggressive reporting behavior, diligent auditors are expected to make relatively more conservative judgment than lax auditors. Hence, once past encounters with managers are retrieved, diligent auditors are more likely to remember their past conservative actions. The retrieved conservative actions should be consistent to the actions of the auditor disagreeing with the manager. Thus, I expect that audit committee members who have

prior experience as a diligent auditor sides with the auditor because the similarities of their past actions *and* mental states to those of the auditor in conflict. In contrast, relatively lax auditors have not encoded as many episodes in which they act conservatively. Hence, the effect of retrieved past actions on a level of auditor support may be limited. Therefore, episodic knowledge acquired through past experience as a diligent auditor should enhance a degree of auditor support to a larger extent than the knowledge attained through experience as a lax auditor. Accordingly, I make the following hypotheses.

H1a: *Episodic knowledge obtained from prior experience as an auditor leads to a greater level of auditor support.*

H1b: *Episodic knowledge obtained from prior experience as a relatively diligent auditor leads to a greater level of auditor support than such knowledge from prior experience as a relatively lax auditor.*

Episodic knowledge from direct experience as a manager is less straightforward than from direct experience as an auditor (i.e., whether it affects the level of audit support in disagreements). In practice, some managers may have an incentive to report aggressively while others are more conservative. Audit committee members who have been in the role of aggressive (conservative) managers encode episodes involving auditor-manager interactions from the aggressive (conservative) manager's perspective. When projecting themselves into the current conflict, aggressive (conservative) managers are more likely to anticipate future states assuming a high probability of aggressive (conservative) reporting. In other words, the behavior of managers in their simulation is closer to their past behavior when they took the same position. The failure to fully

appreciate the difference between self and others (egocentric bias) is common in social interactions (e.g., see Tversky and Kahneman 1974; Van Boven et al. 2000; Epley et al. 2004). Those who previously provided aggressive reports store more cases in which the manager is biased in memory, so they likely assume that other managers also provide aggressive reports. As a result, in an auditor-manager dispute, they should provide more support to the auditor due to a higher sensitivity to the manager's potential to report aggressively (e.g., by exploiting the ambiguity in accounting standards or audit evidence).

In contrast, those who reported conservatively have episodic knowledge that involves a more objective manager. When they try to take the manager's perspective, they are more likely to retrieve episodes in which the manager reported conservatively. As a result, they may adhere to their own conservative reporting, but fail to take into account the fact that other managers may have an incentive to report aggressively. Moreover, when the auditor-manager disagreement involves ambiguity in reporting standards or evidence, audit committee members with conservative manager experience may retrieve previous cases that allow them to justify the manager's interpretation. For example, in the case of probable litigation cost, a manager selects the reporting decision that portrays events favorably, by not providing a disclosure (Cuccia et al. 1995). Episodic knowledge as a conservative manager may increase the audit committee member's tendency to believe that the manager's accounting choice truly represents the firm's financial position. Thus, episodic knowledge of a conservative manager may not increase the auditor committee member's level of auditor support.

H2a: *Episodic knowledge obtained from prior experience as an aggressive manager leads to a greater level of auditor support.*

H2b: *Episodic knowledge obtained from prior experience as a conservative manager does not affect a level of auditor support.*

Figure 1 summarizes all the hypotheses.

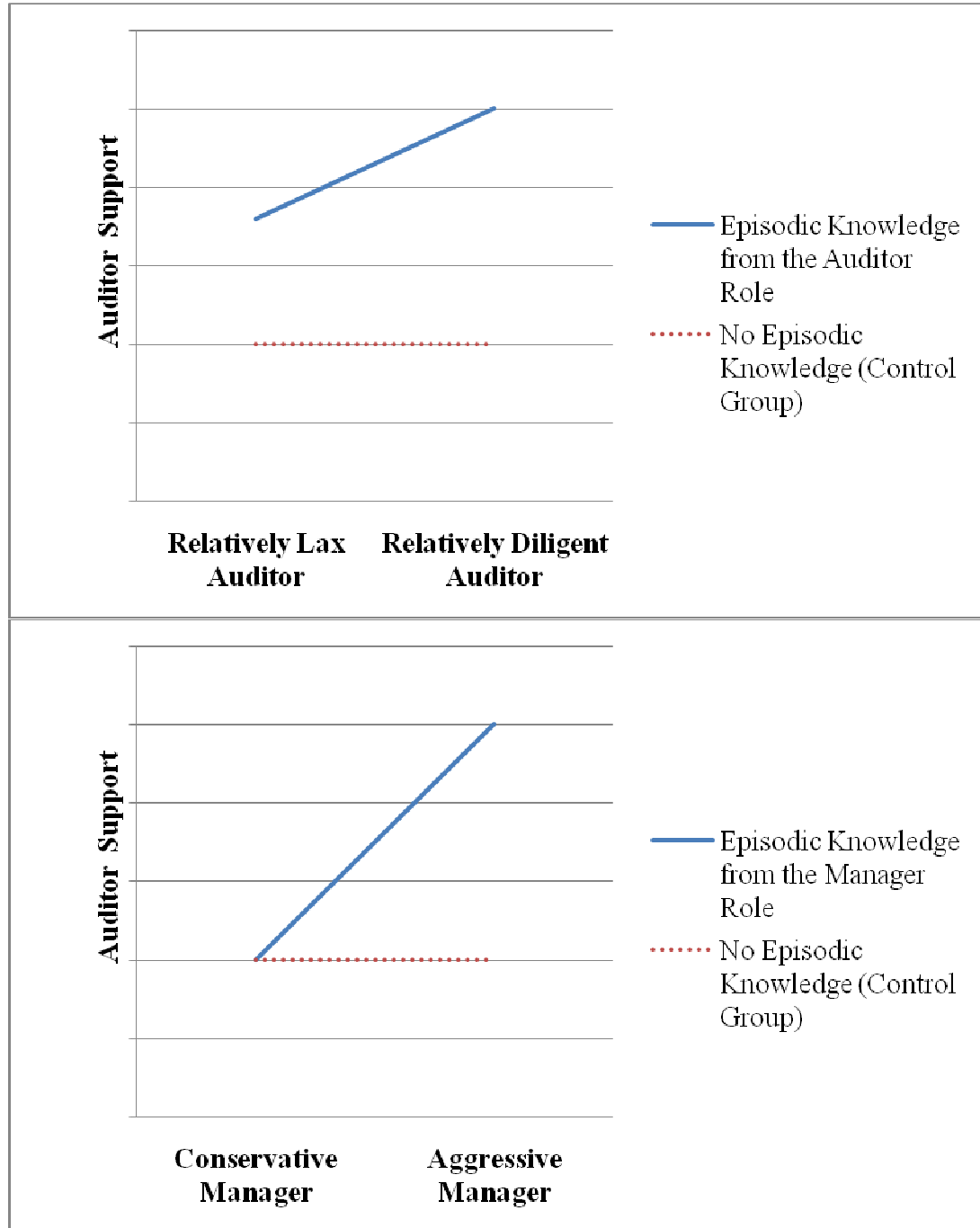


Figure 1

Summary of Hypothesized Relationships

CHAPTER 5

PRELIMINARY STUDY

5.1 Study Overview

The major objectives of the preliminary study are to provide a broad idea of how an audit committee member's episodic knowledge obtained in the role of an auditor or a manager affects his/her decision making and to test the experiment protocol. The preliminary study entails two tasks. I use simpler (abstract) tasks in the experiment to control for possible prior knowledge differences among subjects.¹³ The experiment includes three groups: (1) the auditor group, (2) the manager group, and (3) the control group. Participants in the first two groups complete both the first (auditor-manager) and second (audit committee) tasks, whereas participants in the control group only complete the latter task. The experimental design allows me to examine the effects of episodic knowledge obtained in the auditor's role and that from the manager's role, separately.

A total of 82 undergraduates of Georgia Institute of Technology participated in the experiment. The participants were randomly assigned to one of the three groups, with approximately the same number per group.

In the first (auditor-manager) task, each participant in the auditor group is assigned the role of auditor while each participant in the manager group is assigned the role of manager.¹⁴ At the beginning of each round, auditor-manager pairings are randomly determined. Participants are never informed of the identity of their paired

¹³ An abstract setting is used in the experiment to avoid the potential effects of participants' prior knowledge and experience. However, I use contextually rich terminology in this paper for expositional convenience.

¹⁴ The experimental materials refer to the auditor as the "Receiver" and the manager as the "Sender" to prevent the potential effects of descriptive labels.

partner. The role assigned to each participant does not change throughout the experiment. This task is designed to provide participants with episodic knowledge from experience as an auditor or a manager. The second (audit committee) task is an individual task in which each participant is assigned a role of audit committee member.¹⁵ Participants in the auditor group and the manager group perform this task after completing the first task. In contrast, participants in the control group read the instructions of the first task and then partake in the audit committee task.

5.2 Procedures

5.2.1 First Task (Auditor-Manager)

The auditor-manager task simulates the auditor-manager strategic relationship in a financial reporting context. The main purpose of the task is to provide participants with different kinds of episodic knowledge, which may enhance their level of auditor support in the next (audit committee) task.

In financial reporting, managers generally have more complete information about their own company, compared to auditors, and report the company's earnings with some level of discretion. Aggressive managers have an incentive to provide a biased report while conservative managers have an incentive to report accurately. By comparison, auditors are expected to constrain overly-aggressive reporting. In addition, auditors face an asymmetric loss function, making them more concerned with income-increasing earnings management than income-decreasing earnings management (i.e., being more conservative). If the manager's reported value is deemed to be materially misstated, an

¹⁵ The experimental materials call the audit committee member the "Predictor."

auditor-manager dispute arises and the audit committee may intervene. Both parties are expected to exert effort and spend time in the meeting and its preparation.

At the beginning of each round, a commodity value is determined by drawing two integers with replacement from a uniform distribution $U(0, 50)$. The commodity value is the sum of the two integers, thus ranging from 0 to 100, with an expected value of 50. One of the two integers is then selected at random and given to all auditors and managers so that integer becomes public knowledge. However, only the managers are informed of the commodity value (the sum of the two integers). The managers also know which integer is public knowledge and which one is their private knowledge.

The manager is the first mover in this task. After knowing the two integers, the manager submits a reported value to the paired auditor. The auditor then (1) estimates the commodity value, and (2) chooses either his/her estimate or the manager's reported value as the final estimate of commodity value (i.e., reject or accept the manager's report).

Figure 2 illustrates detailed steps in the first task.

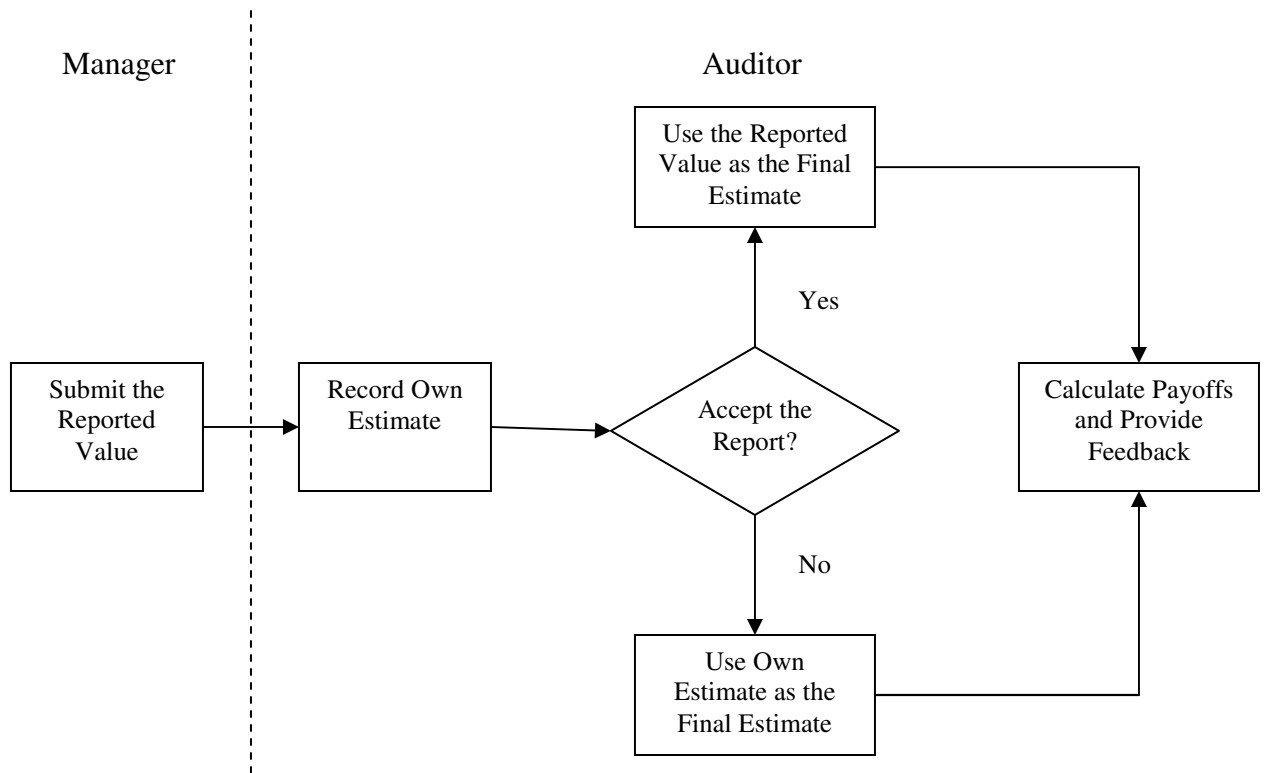


Figure 2
Procedure in Auditor-Manager Task

The payoff functions of an auditor and a manager are common knowledge to all players. The manager's payoff increases with the manager's reported value as long as the reported value is accepted by the auditor. The payoff equals 1 Lira¹⁶ times the reported value. However, if the reported value is rejected by the auditor, then his/her payoff becomes 60 percent of the actual commodity value. Figure 3 depicts the payoffs to all players.

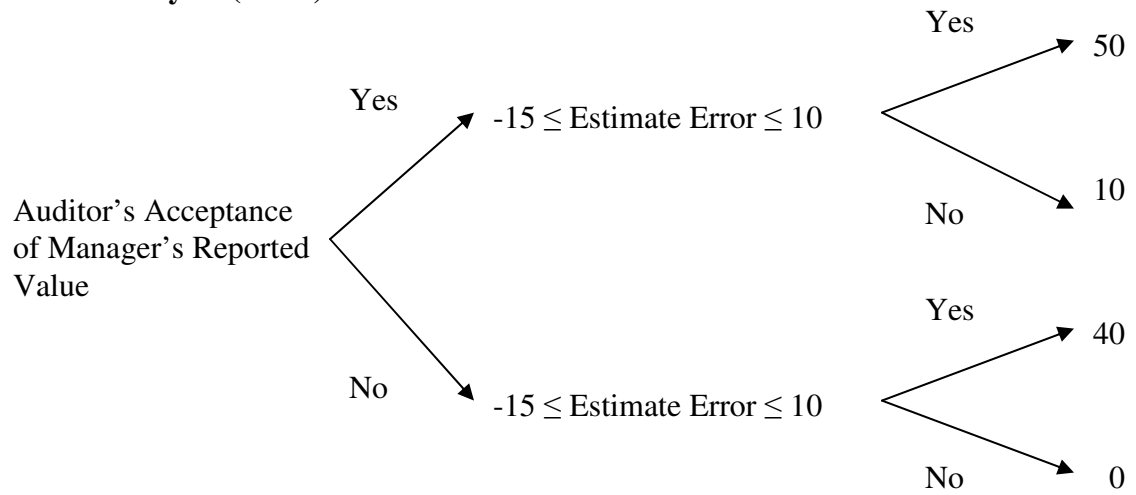
The auditor's payoff increases with the accuracy of his/her final estimate of the commodity value (his/her own or the manager's estimate, whichever is chosen). The auditor receives a reward of 50 Liras if the estimate error (the final estimate – the actual value) falls within the range of -15 to 10 Liras, or 10 Liras otherwise.¹⁷ Moreover, 10 Liras are deducted from the auditor's payoff if he/she rejects the manager's reported value and uses his/her own estimate of the commodity's value as the final estimate.¹⁸ In addition, the auditor earns a bonus based on the accuracy of his/her own estimate, regardless of whether he/she uses the manager's reported value or own estimate. The bonus is calculated as a linear function of the absolute error in the auditor's estimate: $(100 - |\text{auditor's estimate} - \text{the actual commodity value}|)/10$. Therefore, the auditor can earn up to 10 Liras in bonus, in addition to the payoff shown in Figure 3.

¹⁶ Lira is an experimental currency used for the commodity valuation.

¹⁷ The acceptable range is asymmetric around zero because auditors generally prefer conservative accounting choice due to litigation risk concerns (e.g., see DeFond and Subramanyam 1998). Hence, they are more likely to focus on income-increasing as opposed to income-decreasing earnings management.

¹⁸ The cost of 10 Liras is imposed because auditors typically have to exert more effort (e.g., gathering more evidence) to further explore suspicious reporting issues.

Auditor's Payoff (Liras)



$$\text{Auditor's Bonus} = (100 - |\text{Estimate Error}|)/10.$$

Manager's Payoff (Liras)

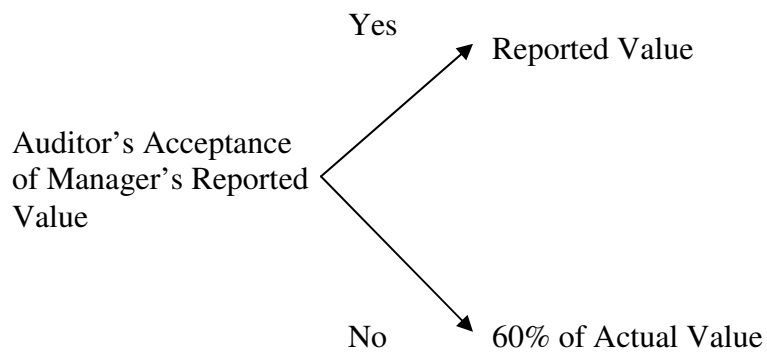


Figure 3

Payoffs in Auditor-Manager Task (Preliminary Study)

Once both players finish their actions, their payoffs are calculated and each player is privately informed of his/her payoff for the round. Participants are re-paired and the new round begins. This task is repeated for four rounds. The participants receive cash payment according to their payoffs in a randomly chosen round at the rate of 5 Liras per dollar.¹⁹

For this first task, participants in the control group only read the instructions but do not have the opportunity to participate. Hence, after this task is done, the participants in the auditor (manager) group are assumed to obtain episodic knowledge in the auditor (manager)'s role, while those in the control group lack such episodic knowledge.

5.2.2 Second Task (Audit Committee)

After the first task is completed, all participants (in all three experimental groups) immediately participate in the audit committee task, which involves auditor-manager disagreements. All participants assume the role of audit committee member, whose task is to predict the commodity value. No feedback is given in this task to curtail any learning opportunity.²⁰

This task consists of five rounds. At the beginning of each round, participants (in the role of an audit committee member) receive information from a randomly selected disagreement when the manager reports aggressively and the auditor's estimate is closer

¹⁹ To expedite the experiment, participants are paid once they finish all experimental tasks. In addition, they do not know their cash payoffs until the end of experiment. The objective of this treatment is to prevent any potential effect (e.g., induced positive or negative emotional states) that cash payments may have on their judgment in the subsequent task.

²⁰ No feedback is provided in this task because experience as an audit committee member is not the focus of this paper.

to the commodity value than the manager's reported value.²¹ The audit committee members are informed of (1) the integer that is public knowledge, (2) the manager's reported value, and (3) the auditor's own estimate of the commodity's value. Then, they are asked to (1) predict which of the manager's reported value and the auditor's own estimate is closer to the actual commodity value, and (2) predict the actual commodity value.

The audit committee member's payoff increases with the proximity of his/her estimate (E) to the actual commodity value (A).²² Specifically, each player receives a reward of 50 Liras minus the absolute prediction error ($50 - |E - A|$). In addition, he/she receives an additional 20 Liras if his/her prediction regarding which of the manager's reported value and the auditor's own estimate is closer to the actual commodity value is correct. The task is repeated five rounds. As in the first task, participants are paid based on their performance in a randomly selected round using a conversion rate of 5 Liras per dollar. Afterwards, the experimenter, with the help of assistants, calculates each participant's monetary payoff, asks them to complete a post-experiment questionnaire (PEQ), and pays them in cash. The PEQ includes manipulation checks to ensure participants' understanding of the experimental tasks. In addition, the PEQ elicits responses to provide insight into the processes that the participants used to come up with their decisions. All instructions are shown in Appendix A.

²¹ For convenience, the disagreements used in the task are pre-selected from a prior session of the experiment. Also, to prevent experimental noise, all participants receive the same set of information in each round of the task.

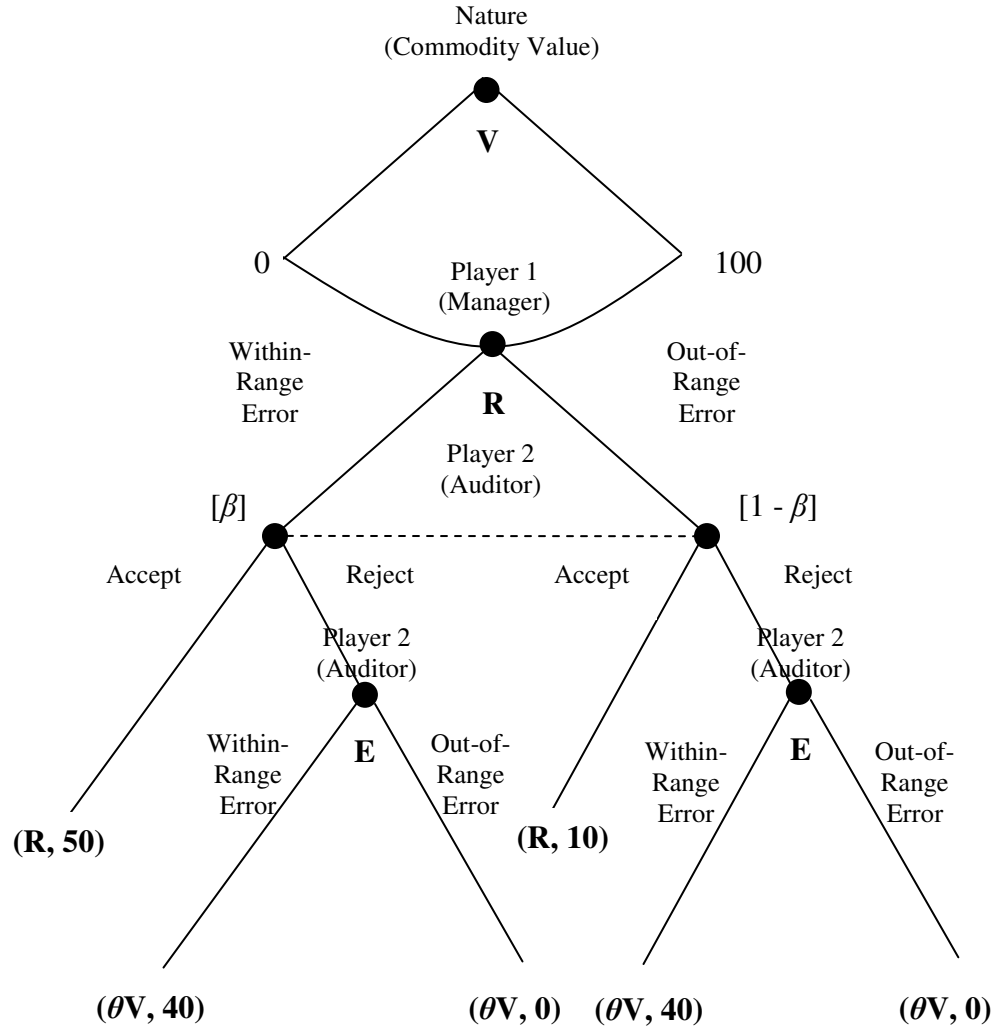
²² Bedard et al. (2004) indicate that unlike auditors, audit committee members do not have an asymmetric loss function and are concerned with both income-increasing as well as income-decreasing earnings management.

5.3 Experiment Predictions

5.3.1 First Task (Auditor-Manager)

The auditor-manager task can be described as a dynamic game of complete but imperfect information.²³ Players move in sequence; the manager first followed by the auditor. The payoff functions are common knowledge to both players but the auditor does not know whether the manager's report contains an acceptable error (between -15 and 10). Figure 4 depicts the extensive game form representation of this game.

²³ The game consists of multiple rounds and players are informed of their payoffs privately at the end of each round. Players may update their beliefs by incorporating new information so the equilibrium strategies depend on each player's beliefs as well as their learning mechanism.



Where V = Actual Commodity Value (Integer I + Integer II)

R = Manager's Reported Value

E = Auditor's Estimate of Commodity Value

β = Probability that Manager's Reported Value Contains an Within-Range Error (between -15 and 10)

θ = 60%

Figure 4

Extensive Game Form Representation of Auditor-Manager Task

Appendix B shows detailed calculations of the perfect Bayesian equilibrium.

Given the knowledge about the unknown integer, the auditor can calculate the probability that the manager's reported value is within the acceptable range, as depicted in Table 1.

Therefore, the equilibrium exists when the manager reports a value of the publicly known integer + 47, regardless of the actual value, and the auditor accepts it.

Table 1

The Probability of Acceptable Error (between -15 and 10) in Auditor-Manager Task

Reported Number <i>less</i> Publicly Known Integer	Probability of Acceptable Error
0	31%
1	33%
2	35%
3	37%
4	39%
5	41%
6	43%
7	45%
8	47%
9	49%
10 to 35	51%
36	49%
37	47%
38	45%
39	43%
40	41%
41	39%
42	37%
43	35%
44	33%
45	31%
46	29%
47	27%
48	25%
49	24%
50	22%

Despite such equilibrium, the actual behavior may differ from the conventional economic prediction. After all, prior research indicates that individuals do not actually calculate equilibrium strategies before making decisions, but rather use the trial-and-error strategies (Cameror 2003). Because each auditor and manager's beliefs about one another may vary and change over time through learning from outcome feedback, I do not make concrete predictions about their behavior. However, I expect that managers try to report the highest value that still makes the auditor believe in the report accuracy. In addition, the auditor's rate of acceptance should decrease with the reported value.

5.3.2 Second Task (Auditor Committee)

I construct the experiment in a way that all participants have conceptual (semantic) knowledge of the incentives of both the auditor and the manager, so they can form ideas toward individuals in each role. However, participants in each of the three groups have different types of experience, obtained from the first task, so their episodic knowledge varies. I expect participants assigned to the auditor (manager) group to have episodic knowledge from direct experience as an auditor (a manager). Participants in the control group do not have relevant episodic knowledge because they do not complete the first task.

I use two variables, SUPPORT and MIDDIFF, to capture the level of auditor support in a disagreement. The dichotomous variable SUPPORT equals 1 if the participant agrees that the actual commodity value is closer to the auditor's estimate than the manager's reported value, or 0 otherwise. MIDDIFF is the difference between the participant's estimate and the middle point between the manager's reported value and the

auditor's estimate. The higher value of SUPPORT and the lower value of MIDDIFF denote the high level of auditor support.

The first set of hypotheses (H1a and H1b) focus on the impact of episodic knowledge acquired from direct experience as an auditor on judgment regarding auditor-manager disagreements. In contrast, the second set of hypotheses (H2a and H2b) pertains to the effect of episodic knowledge obtained from prior experience as a manager. H1a and H1b imply that the auditor group should provide greater auditor support than the control group. In addition, the level of auditor support should be positively associated with their conservative behavior when assuming the auditor role. Taken together, H2a and H2b suggest that the manager group could have greater auditor support than the control group. Furthermore, the greater support should be attributable to the participants who reported aggressively when they were in the manager role.

5.4 Results

5.4.1 First Task (Auditor-Manager)

The results of the first (auditor-manager) task are summarized in Table 2. As shown in Panel A, managers tend to overstate the commodity value. On average, the manager's reported value is 9.75 above the actual commodity value and 10.05 above the middle of possible range (the publicly known integer + 25). Auditors tend to discount the manager's reported value, as reported in Panel B. On average, the auditor's estimate is 5.38 less than the manager's reported value. However, the auditor's adjustment does not totally remove the manager's bias since the average auditor's estimate is 4.37 above the actual value and 4.67 above the middle of possible range. About two-thirds of the

manager's reports are accepted by the auditor. However, Figure 5 depicts that the auditor's acceptance rate generally decreases with the manager's reported value. All in all, the first task is successful in allowing participants to gain experience in the commodity valuation task in which specific incentives are used to simulate an auditor-manager strategic interaction.

Table 2
Summary of Task I Results (Preliminary Study)

Panel A: Manager's Report

<u>Variable</u>	<u>Mean</u>	<u>Median</u>	<u>Standard Deviation</u>
Reported Value	56.59	54	15.953
Reported Value <i>less</i> Publicly Known Integer	35.05	34	12.752
Reported Value <i>less</i> Actual Value	9.75 ***	9	12.242
Reported Value <i>less</i> Middle of Possible Range ^a	10.05 ***	9	12.752

Panel B: Auditor's Estimation

<u>Variable</u>	<u>Mean</u>	<u>Median</u>	<u>Standard Deviation</u>
Estimate	51.21	50.5	12.815
Estimate <i>less</i> Publicly Known Integer	29.67	29	9.856
Estimate <i>less</i> Actual Value	4.37 ***	5.5	13.163
Estimate <i>less</i> Middle of Possible Range	4.67 ***	4	9.856

Panel C: Auditor's Propensity to Accept Manager's Report

<u>Situation</u>	<u>Percentage</u>
<i>Overall</i>	66.96% (47.20%)
<i>When Manager's Reported Value > Actual Value</i>	65.85% (47.70%)
<i>When Manager's Reported Value > Middle of Possible Range</i>	62.07% (48.80%)

^a Middle of Possible Range equals to the publicly known integer plus 25.

*** The mean is statistically different from zero at the 1 percent significance level.

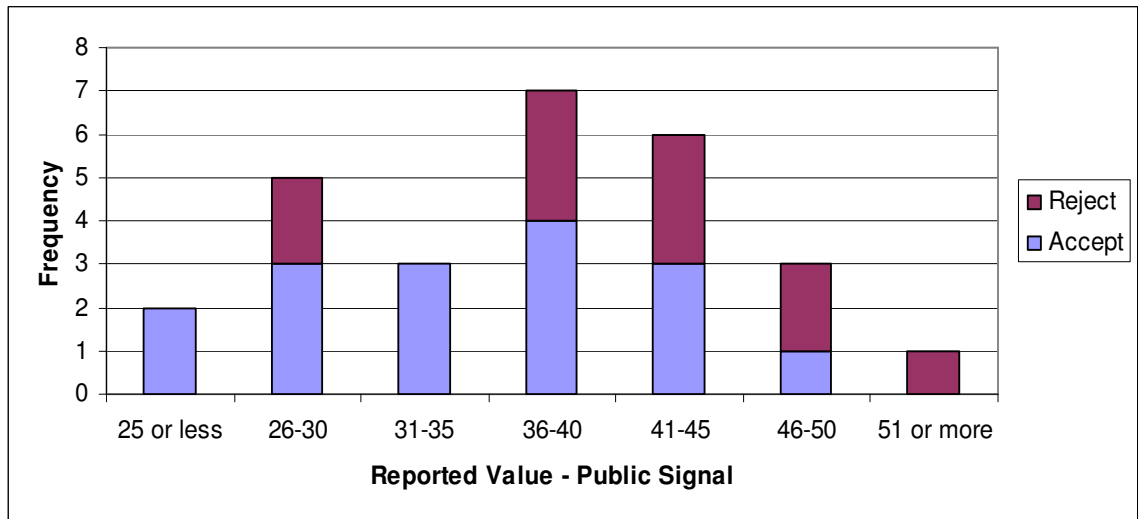


Figure 5

**Frequency Distribution of Auditor's Acceptance of Manager's Reports
(Preliminary Study)**

Next, I test the hypotheses using participants' decisions in the second (audit committee) task of the experiment. In the auditor-manager task, the differences between the manager's reported value and the auditor's estimate when the auditor rejects the manager's report range from -11 to 46, with the mean of 10.76. In the selected cases used in the audit committee member task, managers' reported values exceed auditors' estimate by 8.40 on average, ranging from 7 to 10. Therefore, the selected cases of auditor-manager disputes used in the second task are good representatives of auditor-manager disputes with medium magnitude.

5.4.2 Second Task (Auditor Committee)

The first variable of interest is SUPPORT, which indicates whether a participant believes that the auditor's estimate is more accurate than the manager's reported value. Panel A of Table 3 shows the frequencies of participants' first predictions (SUPPORT) by group. Participants in the control group provide substantially less support to the auditor (33.57 percent) than those in the other groups (51.11 percent for the auditor group and 52.59 percent for the manager group). Participants in the auditor and the manager groups are relatively similar in their likelihood to support the auditor. The chi-square test of independence is statistically significant ($p\text{-value} = 0.002$) thus whether a participant supports the auditor depends on which group he/she was assigned.

Table 3
Task II Descriptive Statistics (Preliminary Study)

Panel A: Participants' Responses (SUPPORT)

<u>Group</u>	<u>Auditor</u>	<u>Manager</u>	<u>Total</u>
Control	47	93	140
Auditor	69	64	135
Manager	71	66	135
Total	187	223	410
Pearson Chi ²	12.479		
Prob > Chi ²	0.002	***	

Panel B: Summary Statistics of SUPPORT and MIDDIFF^a

<u>Group</u>	SUPPORT	MIDDIFF		
	<u>Percentage</u>	<u>Mean</u>	<u>Median</u>	<u>Standard Deviation</u>
Control	33.57%	0.786	0.500	6.649
Auditor	51.11%	-0.407	0.500	4.871
Manager	52.59%	-1.341	-0.500	4.206
Total	45.61%	-0.307	0.500	5.418

^a Variable definitions:

SUPPORT equals 1 if the predictor agrees that the actual commodity value is closer to the auditor's estimate than the manager's reported value, or 0 otherwise.

MIDDIFF is the difference between the predictor's estimate and the middle point between the manager's reported value and the auditor's estimate.

The second variable of interest is MIDDIFF, which is the difference between the participant's estimate and the middle point between the manager's reported value and the auditor's estimate. This variable adds on SUPPORT because it gauges the strength, in addition to the existence, of participants' auditor support. Panel B of Table 3 displays that the mean and median of MIDDIFF are close to zero so participants' estimates, on average, are around half way between the manager's reported value and the auditor's estimate. The more negative the MIDDIFF, the more support the participant provides to the auditor. In contrast, the more positive the MIDDIFF, the more support the participant provides to the manager, and less to the auditor. According to Table 3, the average estimate of participants in the control group is closer to the manager's reported value, while the average estimates of those in the auditor and manager groups are closer to the auditor's estimate.

The above results manifest the potential benefits of relevant episodic knowledge in audit committee members' judgment. Next, I run two regression models (Table 4) to investigate the effects of episodic knowledge from direct experience as an auditor and the knowledge from prior experience as a manager on auditor support. The first regression (Panel A) is a logit model that regresses SUPPORT on two dummy variables, *Auditor* and *Manager*. *Auditor* equals 1 if the participant was in the auditor group or 0 otherwise, while *Manager* equals 1 if the participant was in the manager group or 0 otherwise. The second regression (Panel B) is a linear model that regresses MIDDIFF on *Auditor* and *Manager*. The first regression examines the relationship between participants' episodic knowledge and their valence of auditor support and the second regression investigates the relationship between the episodic knowledge and their magnitude of auditor support.

Table 4

Regression Models for Auditor Support in Task II (Preliminary Study)

Panel A: Logistic Model of SUPPORT Regressed on Auditor and Manager's Perspectives^a

$$SUPPORT = \beta_0 + \beta_1 Auditor + \beta_2 Manager$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		-0.682	0.219	0.002	***
Auditor	+	0.727	0.308	0.018	***
Manager	+	0.786	0.287	0.006	***
Prob > Chi ²		0.014	**		
Pseudo R ²		0.022			

Panel B: Linear Models of MIDDIFF Regressed on Auditor and Manager's Perspectives^a

$$MIDDIFF = \beta_0 + \beta_1 Auditor + \beta_2 Manager$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		0.786	0.698	0.264	
Auditor	-	-1.193	0.900	0.189	*
Manager	-	-2.126	0.818	0.011	***
Prob > F		0.034	**		
R ²		0.026			

^a Variable definitions:

SUPPORT equals 1 if the predictor agrees that the actual commodity value is closer to the auditor's estimate than the manager's reported value, or 0 otherwise.

MIDDIFF is the difference between the predictor's estimate and the middle point between the manager's reported value and the auditor's estimate.

Auditor equals 1 if the predictor was designated as an auditor in Task I, or 0 otherwise.

Manager equals 1 if the predictor was designated as a manager in Task I, or 0 otherwise.

^b Clustered robust standard error is used to control for within-subject error (clustered variable = subject ID).

^c Two-sided probability.

I expect the coefficient of *Auditor* to be positive for the first regression (SUPPORT) but negative for the second regression (MIDDIFF). As shown in Panel A of Table 4, episodic knowledge obtained from prior experience as an auditor significantly increases the participant's likelihood to side with the auditor (one-sided p-value = 0.009). In addition, Panel B of Table 4 shows that on average, the estimates of participants with such episodic knowledge are closer to the auditor's estimate than the control group, and this effect is marginally significant (one-sided p-value = 0.095).

According to Panel A of Table 4, episodic knowledge from prior experience as a manager significantly increases participants' propensity to side with the auditor (one-sided p-value = 0.003). Furthermore, as shown in Panel B, the estimates of participants with such episodic knowledge are significantly closer to the auditor's estimate than the manager's reported value (one-sided p-value = 0.006).

Panel A of Table 5 presents the breakdown of positive and negative estimation errors by experimental group. The control group appears more likely to overestimate the commodity value than do the other two groups. However, the chi-square test of independence suggests that there is no difference in signs of estimation errors among groups (p-value = 0.166). Therefore, episodic knowledge does not significantly affect the likelihood that a participant makes positive or negative estimation errors. This suggests that both the auditor and the manager groups provide more support to auditors in auditor-manager disputes without excessively underestimating the commodity value.

Table 5**Relationships between Decisions in Task I and Task II (Preliminary Study)****Panel A: Breakdown of Positive and Negative Estimation Errors**

<u>Group</u>	<u>Understatement or No Error</u>	<u>Overstatement</u>	<u>Total</u>
Control	7	21	28
Auditor	12	15	27
Manager	13	14	27
Total	32	50	82
Pearson Chi ²	3.592		
Prob > Chi ²	0.166		

Panel B: Correlations between decisions in Task I and Task II

		<u>Discount in Task II</u>	
Manager's inflation in Task I	Pearson Correlation	0.496	
	Probability (2-tailed)	0.009	***
Auditor's discount in Task I	Pearson Correlation	0.294	
	Probability (2-tailed)	0.136	*

Next, I conduct an analysis to shed light on whether the benefits of episodic knowledge depend on the participant's decisions in the auditor-manager task. This analysis is important in differentiating between judgments of aggressive vs. conservative managers and diligent vs. lax auditors. For the manager group, I test the association between the degree that the participants inflate the value in the first task and the degree that the participants discount the manager's report (auditor support) in the second task. I expect that the more the participant inflates the commodity value in the first task (more aggressive), the more he/she discounts the manager's report in the second task. Panel B displays the results from the correlation analysis. The positive and statistically significant correlation (one-sided p-value = 0.005) between inflation in the first task and discount in the second task lends support to my conjecture.

For the auditor group, I test the association between the degrees that the participants discount the manager's reported value in the first and second tasks. The more discount placed on the manager's reported value in the first task implies more diligent behavior for the auditor. I find a marginally significant, positive correlation (one-sided p-value = 0.068). Hence, the magnitude of auditor support of the auditor group is positively related with the participants' diligence when taking the role of an auditor in the auditor-manager task.

5.4.3 Results after a Median Split

The above correlation analysis suggests that the impact of episodic knowledge from experience as an auditor and a manager on auditor support depend on the auditor's and the manager's behavior in the episodes encoded in their memory. To provide more

concrete evidence, I categorize participants in the auditor and manager groups into four subgroups based on their past behavior. For the auditor group, participants whose average commodity estimate, while taking the role of an auditor, is below (above) the median value are classified as diligent (lax) auditors. For the manager group, participants whose average reported value, when they were in the manager role, is below (above) the median value are categorized as conservative (aggressive) managers. Table 6 provides the descriptive statistics of each subgroup. As expected, aggressive managers significantly reported higher values than the conservative counterparts and diligent auditors made significantly lower estimates in the auditor-manager task (all p-values = 0.001).²⁴

²⁴ Although diligent auditors are more likely to reject the reported value than lax auditors, the difference is not statistically significant (p-value = 0.380)

Table 6

Summary of Task I Results after Median Split (Preliminary Study)

Panel A: Manager's Report

<u>Variable</u>	<u>Aggressive Managers</u>	<u>Conservative Managers</u>	
Reported Value <i>less</i> Publicly Known Integer	39.13 (12.89)	31.26 (11.48)	***
Reported Value <i>less</i> Actual Value	13.81 (13.81)	5.97 (9.18)	***
Reported Value <i>less</i> Middle of Possible Range ^a	14.13 (12.89)	6.26 (11.48)	***

Panel B: Auditor's Estimation and Propensity to Accept Manager's Report

<u>Variable</u>	<u>Diligent Auditors</u>	<u>Lax Auditors</u>	
Estimate <i>less</i> Publicly Known Integer	25.46 (7.36)	33.32 (10.33)	***
Estimate <i>less</i> Manager's Reported Value	-9.00 (9.79)	-2.25 (6.76)	***
Estimate <i>less</i> Actual Value	0.21 (11.93)	7.97 (13.21)	***
Acceptance of Manager's Report			
<i>Overall</i>	61.50% (49.10%)	71.70% (45.40%)	
<i>When Manager's Reported Value > Actual Value</i>	59.50% (49.80%)	71.10% (45.80%)	

^a Middle of Possible Range equals to the publicly known integer plus 25.

*** The mean difference is statistically different from zero at the 1 percent significance level (two-sided probability).

Table 7 denotes the descriptive statistics of participants' responses in the audit committee task by subgroup (plus the control group). Panel A entails the frequencies of SUPPORT for each subgroup. The chi-square test of independence is statistically significant ($p\text{-value} = 0.001$) indicating that there is a significant difference in SUPPORT among subgroups. Panel B displays that the summary statistics of SUPPORT and MIDDIFF. The average estimate of the control group is the closest to the manager's reported value, while the average estimate of aggressive managers is the closest to the auditor's estimate.

Table 7

Task II Descriptive Statistics after Median Split (Preliminary Study)

Panel A: Participants' Responses (SUPPORT)

<u>Group</u>	<u>Auditor</u>	<u>Manager</u>	<u>Total</u>
Control	47	93	140
Diligent Auditor	34	31	65
Lax Auditor	35	35	70
Aggressive Manager	41	24	65
Conservative Manager	30	40	70
Total	187	223	410
Pearson Chi ²	18.106		
Prob > Chi ²	0.001	***	

Panel B: Summary statistics of SUPPORT and MIDDIFF^a

<u>Group</u>	<u>SUPPORT</u>	<u>MIDDIFF</u>		<u>Standard Deviation</u>
	<u>Percentage</u>	<u>Mean</u>	<u>Median</u>	
Control	33.57%	0.786	0.500	6.649
Diligent Auditor	52.31%	-1.185	-0.500	5.360
Lax Auditor	50.00%	0.314	0.500	4.282
Aggressive Manager	63.08%	-2.708	0.500	5.001
Conservative Manager	42.86%	-0.071	-2.500	2.786
Total	45.61%	-0.307	0.500	5.418

^a Variable definitions:

SUPPORT equals 1 if the predictor agrees that the actual commodity value is closer to the auditor's estimate than the manager's reported value, or 0 otherwise.

MIDDIFF is the difference between the predictor's estimate and the middle point between the manager's reported value and the auditor's estimate.

I run two regression models as shown in Table 8 to test my hypotheses. The first regression model (Panel A) is a logit model that regresses SUPPORT on four dummy variables, *AuditorDil*, *AuditorLax*, *ManagerAgg* and *ManagerCon*. *AuditorDil* (*AuditorLax*) equals 1 if the participant is classified as a diligent (lax) auditor or 0 otherwise. *ManagerAgg* (*ManagerCon*) equals 1 if the participant is classified as an aggressive (conservative) manager or 0 otherwise. The second regression model (Panel B) is a linear model that regresses MIDDIFF on the four dummy variables. The two regressions aim at investigating the effect of episodic knowledge obtained from different kinds of experience on the level of auditor support.

Table 8

**Regression Models for Auditor Support in Task II after Median Split
(Preliminary Study)**

Panel A: Logistic Model of SUPPORT Regressed on Auditor and Manager's Perspectives^a

$$SUPPORT = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_2 ManagerCon$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		-0.682	0.219	0.002	***
AuditorDil	+	0.749	0.411	0.069	**
AuditorLax	+	0.709	0.357	0.047	**
ManagerAgg	+	1.422	0.337	0.000	***
ManagerCon	0	0.217	0.297	0.465	
$\beta_1 - \beta_2$	+			0.929	
Prob > Chi ²		0.000	***		
Pseudo R ²		0.043			

Panel B: Linear Models of MIDDIFF Regressed on Auditor and Manager's Perspectives^a

$$MIDDIFF = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_2 ManagerCon$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		0.786	0.698	0.264	
AuditorDil	+	-1.802	1.145	0.119	*
AuditorLax	+	-0.706	0.989	0.477	
ManagerAgg	+	-3.555	0.902	0.000	***
ManagerCon	0	-0.800	0.790	0.314	
$\beta_1 - \beta_2$	+			0.340	
Prob > F		0.001	***		
R ²		0.051			

^a Variable definitions:

SUPPORT equals 1 if the predictor agrees that the actual commodity value is closer to the auditor's estimate than the manager's reported value, or 0 otherwise.

MIDDIFF is the difference between the predictor's estimate and the middle point between the manager's reported value and the auditor's estimate.

AuditorDil equals 1 if the predictor was classified as a diligent auditor in Task I, or 0 otherwise.

AuditorLax equals 1 if the predictor was classified as a lax auditor in Task I, or 0 otherwise.

ManagerAgg equals 1 if the predictor was classified as an aggressive manager in Task I, or 0 otherwise.

ManagerCon equals 1 if the predictor was classified as a conservative manager in Task I, or 0 otherwise.

^b Clustered robust standard error is used to control for within-subject error (clustered variable = subject ID).

^c Two-sided probability.

According to H1a and H2a, I expect the coefficients of *AuditorDil*, *AuditorLax* and *ManagerAgg* to be positive for the first regression (SUPPORT) but negative for the second regression (MIDDIFF). As shown in Panel A of Table 4, episodic knowledge obtained from experience as a diligent auditor, a lax auditor and an aggressive manager increases the participant's tendency to side with the auditor (one-sided p-values = 0.035, 0.024 and 0.000). Panel B indicates that episodic knowledge obtained from prior experience as a diligent auditor and an aggressive manager significantly reduces the participant's estimate (one-sided p-values = 0.060 and 0.000) but episodic knowledge from the experience of a lax auditor does not (one-sided p-value = 0.239).

H1b predicts that episodic knowledge from previous experience as a diligent auditor results in a higher level of auditor support than the experience as a lax auditor. Although the magnitude of coefficients for the auditor group is larger in both models, I fail to find a significant differences between the two effects (one-sided p-values = 0.465 and 0.170, respectively). Nevertheless, the finding that only episodic knowledge from prior experience as a diligent auditor significantly reduces the participant's estimate implies the stronger influence on auditor support, compared to the knowledge from having been a lax auditor. Consistent with H2b, the coefficients of *ManagerCon* are not

statistically significant in both models (p -values = 0.465 and 0.314). Overall, the results largely support H1a, H2a and H2b but portray a fuzzy picture regarding H1b.

5.5 Discussion

Results of the preliminary study indicate that episodic knowledge from prior experience as an auditor or a manager can strengthen audit committee auditor support. While the benefit of episodic knowledge from prior experience as a manager may be limited only to ones who have reported aggressively, it is not as clear whether the usefulness of episodic knowledge from experience as an auditor depends on their past behavior (i.e., being diligent or being lax). Subsequently, I revise my experiment design and conduct another study that allows me to compare the effects of episodic knowledge of an auditor and a manager based on both their past incentives as well as past actions in the encoded episodes. Although my preliminary study suggests that the experiment protocol is generally effective, I make certain modifications to increase external and internal validity of the study. Details of the main study are presented in the next chapter.

CHAPTER 6

MAIN STUDY

6.1 Study Overview

I conduct an experiment, consisting of two tasks, to investigate the effect of an audit committee member's enriched long-term memory, from relevant episodic knowledge, on his/her judgment regarding auditor-manager disagreements. The two tasks are quite similar to the ones used in the preliminary study. Nonetheless, there are several important distinctions.

First, I directly manipulate the types of managers and auditors in this study based on their incentives. A manager can be either an aggressive or conservative type, while an auditor can be either a diligent or lax type. This manipulation allows me to observe the effects of different types of episodic knowledge based on their past incentives, in addition to their past behavior. According to Foley and Ratner (2001), an episode likely delineates the interplay between the internal, psychological world and the external, physical world. I expect that the classification of auditor and manager types based on their incentives aims relatively more attention at the psychological perspective (e.g., thoughts, planning and perception of the situation, while the classification based on their actions angles more toward the physical perspective (e.g., actions and outcomes).

Second, I measure each participant's task-relevant conceptual (semantic) knowledge and risk attitude. In the preliminary study, I assume that before participating in the audit committee task, participants in the manager, the auditor, and the control groups only differ in their levels of episodic knowledge. However, direct experience as

an auditor or a manager might lead to a greater level of relevant semantic knowledge as well. My experimental results may also be affected by participants' risk attitude. Hence, I control for these possibilities in this study.

Third, I introduce more ambiguity pertaining to the commodity value in this study. In the preliminary study, managers knew the actual commodity value with certainty. To make the tasks more corresponding to the idea that managers may interpret evidence aggressively or conservatively, managers in the main study are only informed of the range that contains the actual commodity value.

A total of 100 students (83 undergraduate and 17 graduate students) of Georgia Institute of Technology participated in the experiment. The participants were randomly assigned to one of the five groups, with approximately the same number per group. Five experimental groups include (1) diligent auditor group, (2) lax auditor group, (3) aggressive manager group, (4) conservative manager group, and (5) control (no episodic knowledge) group.²⁵ Participants in the first four groups complete the auditor-manager task before performing the audit committee tasks, thus providing them opportunity to gain relevant semantic and episodic knowledge. In contrast, participants in the control group only read the instructions of the auditor-manager task (to gain semantic knowledge) before partaking in the audit committee task. The experimental design enables me to investigate the effects of varying episodic knowledge on participants' judgment, while controlling for the level of semantic knowledge.

²⁵ The design is the only feasible way to control participants' prior experience in the role of an auditor or a manager and their previous exposure to a specific manager type (aggressive or conservative).

6.2 Procedures

Participants were first asked to make ten-paired lottery-choices decisions (Appendix C), as adapted from Holt and Laury (2002). The main purpose of these decisions is to ensure similarity in risk preference across group. For each decision, participants can choose between a relatively safe option (an outcome of \$4 or \$3.20) and a risky option (an outcome of \$7.70 or \$0.20). However, the probability of higher outcome varies for each decision (from 10 percent to 100 percent with increments of 10 percent). Risk-neutral individuals are expected to choose the risky option only when the probability of a higher outcome is 50 percent or more.

Instructions (as shown in Appendix D) are distributed and read aloud by the experimenter. Participants are given ample time to read them and ask questions before the experiment begins. In the first (auditor-manager) task, each participant is designated the role of a diligent auditor, a lax auditor, an aggressive manager or a conservative manager.²⁶ At the beginning of each round, auditor-manager pairings are randomly determined. Participants are never informed of the identity of their paired partner. The role assigned to each participant does not change throughout the experiment. The primary purpose of this task is to provide participants with relevant episodic knowledge before participating in the next task. The second (audit committee) task is an individual task in which each participant is assigned the role of an audit committee member.²⁷ Participants in the auditor and manager groups perform this task after the first task is completed. In

²⁶ The experimental materials refer to the auditor (both diligent and lax), the aggressive manager, and the conservative manager as the “Receiver”, “Type X Sender”, and “Type Y Sender”, respectively, to prevent the potential effects of descriptive labels.

²⁷ The experimental materials call the audit committee member the “Predictor.”

contrast, participants in the control group only read the instructions of the first task and then perform the second task.

6.2.1 First Task (Auditor-Manager)

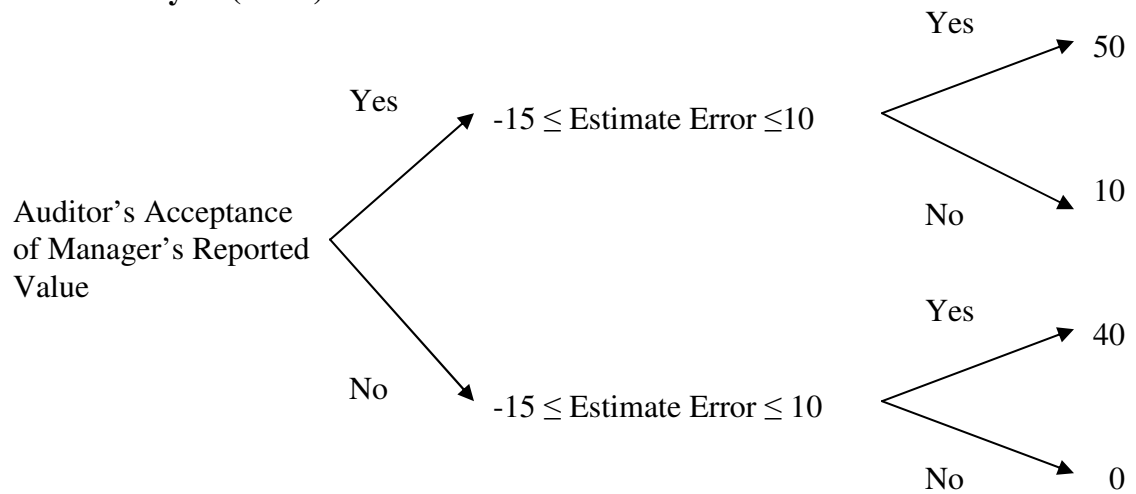
Like the preliminary study, the auditor-manager task resembles the auditor-manager relationship in a financial reporting context. In this task, the aggressive (conservative) manager group is paired with the diligent (lax) auditor group. All auditors have the same payoff function while those of aggressive and conservative managers differ. The experimenter announces to all participants that in half of the sessions, the managers will be aggressive and the other half conservative. The experimenter also declares the type of managers in a session to all participants in that session. The payoff functions of an auditor, an aggressive manager and a conservative manager are common knowledge to all players.

The commodity value is determined in a similar way as in the preliminary study (a sum of two integers, each of which can be any integer from 0 to 50). However, the managers do not observe the true value of the second integer. Instead, they are informed of the interval that contains the true value of this integer. This interval includes 15 integers and each integer in the interval has an equal chance of being the second integer's actual value.²⁸ This uncertainty resembles ambiguity in the financial reporting context, which allows managers' reporting discretion. After that, the manager and the auditor, consequently, make decisions as summarized in previous chapter (Figure 2).

²⁸ The interval is determined by randomly selecting an integer between 1 and 15. The number indicates the position of the undisclosed integer in the 15-integer interval. For example, if the undisclosed integer is 25 and the position is 3, then the interval given to the manager is [23, 37]. However, the interval is bounded by the possible value of the undisclosed integer (0 to 50). Therefore, the interval cannot go lower than [0, 14] or higher than [36, 50].

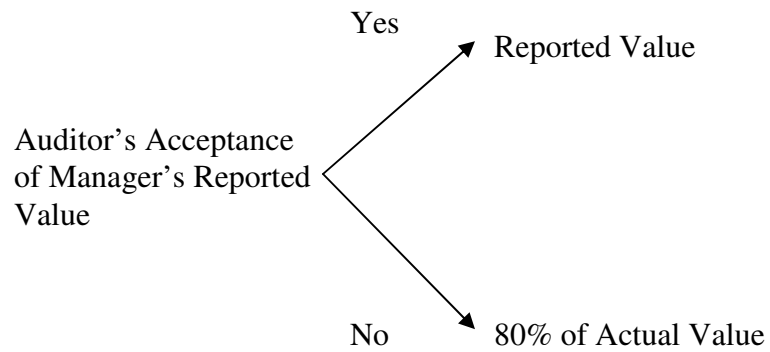
The aggressive manager's payoff increases with the manager's reported value as long as the reported value is accepted by the auditor. In this case, the payoff equals 1 to the reported value. However, if the reported value is rejected by the auditor, then his/her pay becomes 80 percent of the actual commodity value. The conservative manager's payoff is similar to the aggressive manager's except that if the auditor rejects the report, the pay reduces to only 20 percent of the actual commodity value. The auditor's payoff function is identical to that in the preliminary study. Figure 6 depicts the payoffs to all players.

Auditor's Payoff (Liras)



$$\text{Auditor's Bonus} = (100 - |\text{Estimate Error}|)/10.$$

Aggressive Manager's Payoff (Liras)



Conservative Manager's Payoff (Liras)

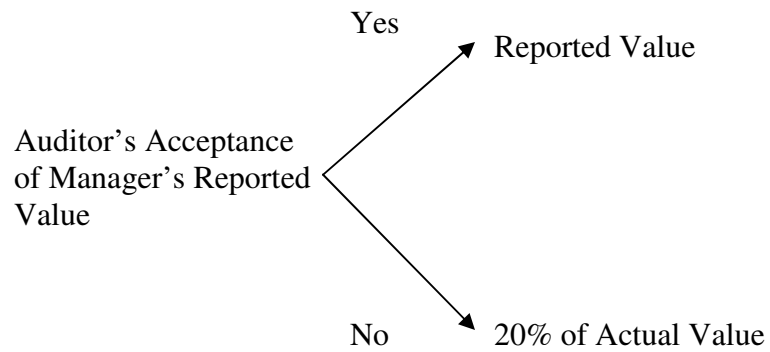


Figure 6

Payoffs in Auditor-Manager Task (Main Study)

Once both players finish their actions, their payoffs are calculated and each player is privately informed of his/her payoff for the round. Participants are re-paired (each auditor is paired with a different manager of the same type: diligent auditor-aggressive manager and lax auditor-conservative manager) and the new round begins. This task is repeated for four rounds. The participants receive cash payment according to their payoffs in a randomly chosen round at the rate of 6 Liras per dollar.²⁹ After the fourth round is done, a short quiz, including three true/false conceptual questions, is distributed to assess participants' understanding of the incentive structure, which is considered task-specific semantic knowledge. The quiz measures relevant semantic knowledge and its score is used to ascertain that participants in each group come into the second experimental task with the same level of semantic knowledge. The participants are paid 4 Liras per each correct answer in the quiz.

For this task, participants in the control group only read the instructions but do not have the opportunity to participate. After reading the instructions, participants in the control group complete the same quiz as do participants in the other groups. This quiz helps verify that before participating in the second task, participants in the control group have a similar amount of relevant semantic knowledge as the other groups.³⁰ It also enables controlling for task-specific semantic knowledge before examining the effect of varying levels of episodic knowledge stored in the participants' memory on auditor support.

²⁹ To expedite the experiment, participants are paid once they finish all experimental tasks. In addition, they do not know their cash payoffs until the end of experiment. The objective of this treatment is to prevent any potential effect (e.g., induced positive or negative emotional states) that cash payments may have on their judgment in the subsequent task.

³⁰ The experimenter also goes through the quiz solution with the participants before they partake in the next task. This procedure aims to provide further assurance that the significant difference in the participants' task-related semantic knowledge does not exist.

6.2.2 Second Task (Auditor Committee)

After the first task is completed, every participant (in all five experimental groups) immediately participates in the audit committee task, which involves auditor-manager dispute resolution. All participants assume the role of an audit committee member, whose task is to predict the commodity value.

This task consists of six rounds. At the beginning of each round, participants (in the role of an audit committee member) receive information from a randomly selected disagreement when the manager reports aggressively and the auditor's estimate is closer to the commodity value than the manager's reported value.³¹ The audit committee members are informed of (1) the integer that is public knowledge, (2) the manager's reported value, and (3) the auditor's own estimate of the commodity's value. However, they do not know whether the manager in the disagreement has an incentive to be aggressive or conservative. Then, they are asked to (1) predict the actual commodity value and (2) indicate agreement with the auditor's decision to reject the manager's reported value (from 0 to 100 percent).³²

The audit committee member's payoff increases with the proximity of his/her estimate (E) to the actual commodity value (A).³³ Specifically, each player receives a reward of 50 Liras minus the absolute prediction error ($50 - |E - A|$). In addition, if the auditor's decision to reject the manager's reported value is justified (the manager's report contains unacceptable error to the auditor), each player receives 20 Liras time the

³¹ For convenience, the disagreements used in the task are pre-selected from a prior session of the experiment. Also, to prevent experimental noise, all participants receive the same set of information in each round of the task.

³² I expect the percentage in agreement with the auditor's decision to provide more variation in judgment than the yes/no question used in the preliminary study.

³³ Bedard et al. (2004) indicate that unlike auditors, audit committee members do not have an asymmetric loss function and are concerned with both income-increasing as well as income-decreasing earnings management.

percentage in agreement with the auditor's decision. In contrast, if the auditor's decision is invalid, each player receives 20 Liras times the percentage in disagreement with the auditor's decision ($100\% - \text{percentage in agreement}$). The task is repeated six rounds. As in the first task, participants are paid based on their performance in a randomly selected round using a conversion rate of 6 Liras per dollar. Afterwards, the experimenter, with the help of assistants, calculates each participant's monetary payoff, asks them to complete a PEQ, and pays them in cash.

6.3 Experimental Predictions

6.3.1 First Task (Auditor-Manager)

The manipulation of manager type does not change the extensive game form of the auditor-manager task depicted in last chapter (Figure 4). The only difference lies in the value of θ in the manager's payoff function ($\theta = 80\%$ and 20% for the aggressive and conservative managers, respectively). Although the conservative manager obtains a lower payoff from a rejected report than the aggressive manager, the perfect Bayesian equilibrium prescribed in Appendix B still holds for both manager types. That is, the game-theoretic equilibrium suggests no difference in the aggressive and the conservative managers' actions.

Despite the game-theoretic predictions, prior research (e.g., Goeree and Holt 2001, Bowlin et al. 2009) documents the "own-payoff effect," the tendency for one's behavior to reflect variation in his/her own payoff even if only other players' payoffs should matter in the game-theoretic equilibrium. If managers fixate on their own payoffs, then overstating the commodity value will seem relatively less attractive for the

conservative managers (due to more severe punishment when the report is rejected by the auditor). As a result of the own-payoff effect, I conjecture that compared to conservative managers, aggressive managers report more aggressively. In addition, since the reported value influences how the auditor forms a belief about the manager's underlying action, I expect the auditor's tendency to reject the manager's report increases with the reported value.

6.3.2 Second Task (Auditor Committee)

I test the hypotheses using participants' decisions in the second (audit committee) task of the experiment. I construct the experiment in a way that all participants have opportunity to acquire second-hand (semantic) knowledge of the incentives of both the auditor and the manager, so they can form an idea about individuals in each role. However, participants in each of the five groups are different in their levels of episodic knowledge, obtained from first-hand experience in the first (auditor-manager) task. I use two classifications in categorizing their episodic knowledge: by incentives and actions. First, pertaining to their incentives, I expect participants in the manager role to fixate on their own payoffs (particularly the penalty for detected aggressive reporting behavior). Therefore, those assigned to the conservative manager group are less incentivized to report aggressively than the aggressive manager group due to the own payoff effect. Hence, the two manager groups are presumed to obtain episodic knowledge from experience as a conservative and an aggressive manager, respectively.

For the auditor groups, those with experience as an auditor interacting with aggressive managers (the diligent auditor group) are more likely to encounter an

aggressive reported value and thus, are more motivated to act conservatively (i.e., provide a low estimate and/or reject the manager's report) than the auditor auditors. I label auditors interacting with aggressive managers as "diligent auditors" and those encountering conservative managers as "lax auditors." Participants in the control group do not have direct experience as an auditor or a manager, so they do not have opportunity to acquire aforementioned episodic knowledge.

The next classification is based on participants' behavior in the auditor-manager task, similar to Chapter 5. Former auditors whose average commodity estimate in the auditor-manager task is below (above) the median value are considered diligent (lax) auditors. Former managers whose average reported value is below (above) the median value are categorized as conservative (aggressive) managers. I conduct two analyses based on this classification. Overall (folded across the auditor and manager types) medians of average commodity estimate and average reported value are used as cutoffs in the first analysis. Afterward, I reperform the analysis using group medians of average commodity estimate and average reported value as thresholds.³⁴

The first set of hypotheses (H1a and H1b) focus on the impact of episodic knowledge acquired through direct experience as an auditor on a level of auditor support in reconciling auditor-manager disagreements. In contrast, the second set of hypotheses (H2a and H2b) pertains to the effect of episodic knowledge obtained from experience as a manager (either aggressive or conservative type). I use two variables, SUPPORT and MIDDIFF, to capture the level of auditor support in a disagreement. SUPPORT equals the percentage agreement with the auditor's decision to reject the manager's reported

³⁴ Managers who reported more (less) aggressively than the average peer in the same group are categorized as aggressive (conservative) managers. Auditors whose judgment is more (less) conservative than the average peer in the same group are classified as diligent (lax) auditors.

value, while MIDDIFF is the difference between the participant's estimate and the middle point between the manager's reported value and the auditor's estimate. The higher value of SUPPORT and the lower value of MIDDIFF denote the high level of auditor support. According to the hypotheses, episodic knowledge from experience as an auditor or an aggressive manager should strengthen auditor support, while episodic knowledge from a conservative manager experience should not.

6.4 Results

6.4.1 Manipulation Checks

Responses to the manipulation check questions suggest that all manipulations were successful. First, all participants correctly indicated the type of manager (aggressive or conservative) in their sessions. Second, although it is possible that direct experience allows one to acquire both higher levels of episodic and semantic knowledge, the results of a conceptual knowledge test provide assurance that it is very unlikely in my experiment. Panel A of Table 9 shows the descriptive statistics of the conceptual test score, measuring participants' level of semantic knowledge regarding the incentives of the auditor and manager in the first task. There is no difference in the test score across groups ($p\text{-value} = 0.423$). Furthermore, Panel B of Table 9 depicts risk preference scores of participants in each group. Like the knowledge test score, the risk preference score does not differ across groups ($p\text{-value} = 0.966$). Therefore, my results are not driven by the differences in semantic knowledge and risk attitude among experimental groups.

Table 9
Conceptual Knowledge and Risk Preference Scores (Main Study)

Panel A: Conceptual Knowledge Test Scores

<u>Group</u>	<u>Mean</u>	<u>Standard Deviation</u>
Control	2.80	0.41
Diligent Auditor	2.81	0.40
Lax Auditor	2.95	0.23
Aggressive Manager	2.90	0.30
Conservative Manager	2.95	0.23
Prob > F	0.423	

Panel B: Risk Preference Scores^a

<u>Group</u>	<u>Mean</u>	<u>Standard Deviation</u>
Control	6.00	1.16
Diligent Auditor	5.71	1.49
Lax Auditor	5.83	1.54
Aggressive Manager	5.90	1.25
Conservative Manager	5.74	1.45
Prob > F	0.966	

^a The score represents the first time a participants chose a risky alternative among two options in the task similar to Holt and Laury (2002). The possible range is 1 to 10. The higher score indicates greater risk-aversion and a risk neutral participant is expected to have a score of 5. Three participants are excluded from the calculations because they alternated between safe and risky options more than once.

6.4.2 Analysis Using Classification by Incentives

6.4.2.1 First Task (Auditor-Manager)

The results of the first (auditor-manager) task are summarized in Table 10. As shown in Panel A, both aggressive and conservative managers tend to overstate the commodity value. In addition, aggressive managers report significantly higher numbers than their conservative counterparts. On average, the aggressive (conservative) manager's reported value is 8.00 (4.87) above the actual commodity value and 7.00 (3.87) above the middle of possible range (the publicly known integer plus the middle value of the 15-integer range containing the other integer). Moreover, aggressive managers report significantly higher values compared to the conservative counterparts (one-sided p-values of reported value less the publicly known integer, reported value less actual value and reported value less the middle of possible range = 0.048). The results suggest that the manipulation of manager's incentive succeeds as aggressive managers are induced to report more aggressively than conservative ones.

Table 10
Summary of Task I Results (Main Study)

Panel A: Manager's Report

<u>Variable</u>	<u>Aggressive Managers</u>	<u>Conservative Managers</u>		<u>Overall Mean</u>
Reported Value <i>less</i> Publicly Known Integer	32.25 (11.50)	29.12 (12.92)	**	30.76 (12.25)
Reported Value <i>less</i> Actual Value	8.00 (8.65)	4.87 (10.53)	**	6.51 (9.69)
Reported Value <i>less</i> Middle of Possible Range ^a	7.00 (8.75)	3.87 (10.59)	**	5.51 (9.76)

Panel B: Auditor's Estimation and Propensity to Accept Manager's Report

<u>Variable</u>	<u>Diligent Auditors</u>	<u>Lax Auditors</u>		<u>Overall Mean</u>
Estimate <i>less</i> Publicly Known Integer	27.13 (9.58)	25.01 (10.90)	*	26.13 (10.25)
Estimate <i>less</i> Manager's Reported Value	-5.12 (11.06)	-4.11 (11.33)		- 4.64 (11.17)
Estimate <i>less</i> Actual Value	2.88 (9.24)	0.76 (9.67)	*	1.88 (9.48)
Acceptance of Manager's Report				
<i>Overall</i>	67.86%	73.68%		70.63%
<i>When Manager's Reported Value > Actual Value</i>	64.71%	72.22%		68.03%

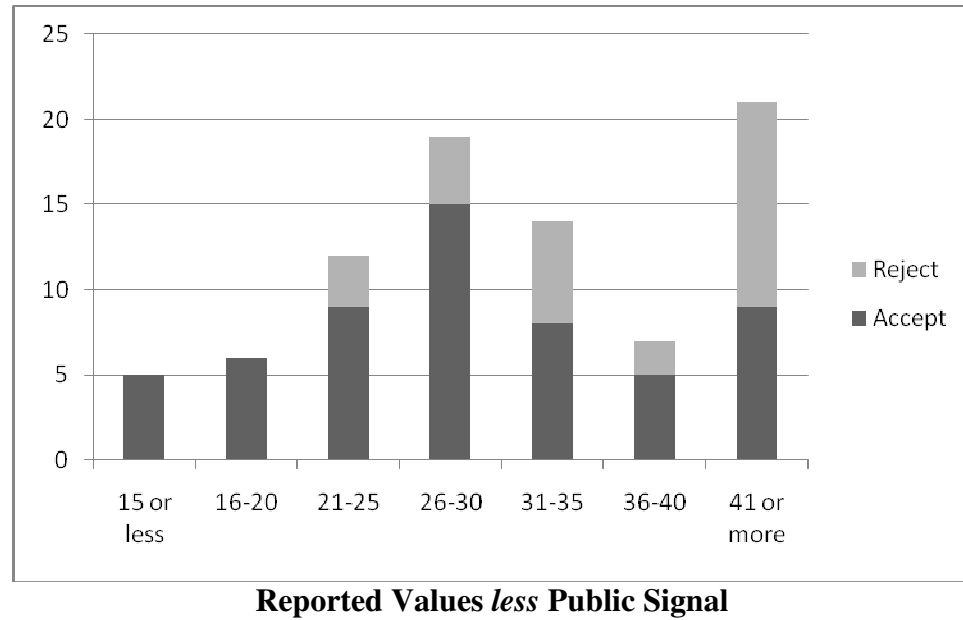
^a Middle of Possible Range equals to the publicly known integer plus the middle value of the range containing the privately known integer.

**, * The mean (clustered robust) difference is statistically different from zero at the 5 and 10 percent significance level (one-sided probability).

Auditors tend to discount the manager's reported value, as reported in Panel B. The average estimate of the auditor facing aggressive (conservative) manager is 5.12 (4.11) less than the aggressive (conservative) manager's reported value. However, the auditor's adjustment does not totally remove the manager's bias since the average auditor's estimate is 2.88 (0.76) above the actual value when the manager is aggressive (conservative) type. About 68% (74%) of the aggressive (conservative) manager's reports are accepted by the auditor. Auditors encountering aggressive managers ("diligent" auditors) made significantly lower estimates than "lax" auditors (one-sided p-values of estimate less the publicly known integer and estimate less actual value = 0.082). Nonetheless, the two groups' discount placed on and tendency to accept the manager's report are not statistically significant (one-sided p-values = 0.162 and 0.238). Figure 7 delineates that the auditor's acceptance rate generally decreases with the manager's reported value. In addition, on average, the magnitude of the auditor's discount does not relate to the type of manager they are interacting with. All in all, the first task is successful in allowing participants to gain experience in the commodity valuation task in which specific incentives are used to simulate an auditor-manager interaction.³⁵

³⁵ In the auditor-manager task, the average difference between the manager's reported value and the auditor's estimate when the auditor rejects the manager's report is 10.30 with the standard deviation of 12.44. In the selected cases used in the audit committee member task, managers' reported values exceed auditors' estimate by 9.40 on average, ranging from 7 to 13. Therefore, the selected cases of auditor-manager disputes used in the second task are representative of auditor-manager disputes with medium magnitude.

Aggressive Managers



Conservative Managers

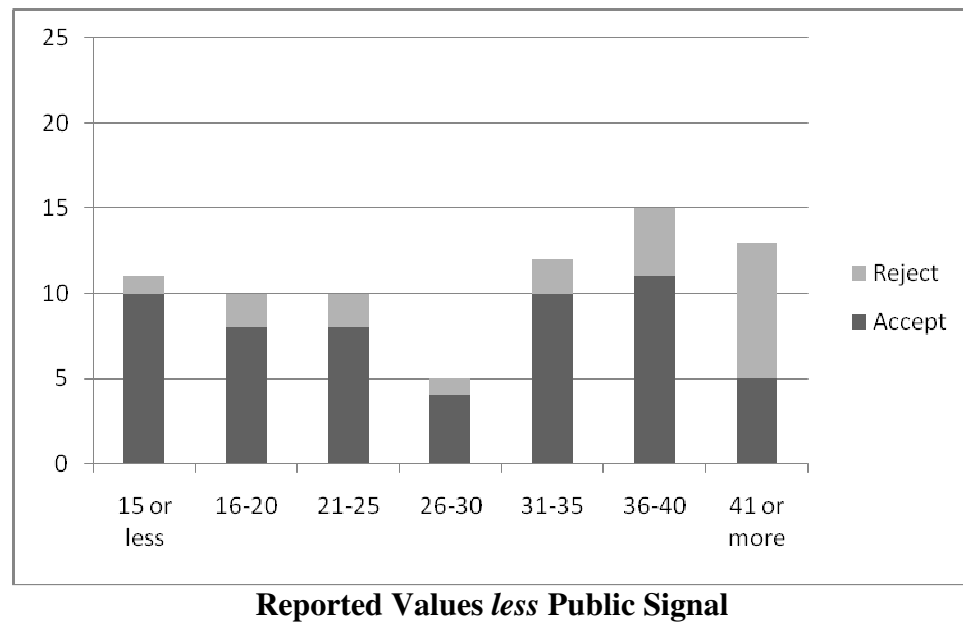


Figure 7

Frequency Distribution of Auditor's Acceptance of Manager's Reports
(Main Study)

6.4.2.2 Second Task (Audit Committee)

I code four dummy variables, corresponding to the five experimental groups, in this study. First, *AuditorDil* equals 1 if the participant has episodic knowledge as an auditor encountering aggressive managers (the diligent auditor group), or 0 otherwise. Second, *AuditorLax* equals 1 if the participant has episodic knowledge as an auditor encountering conservative managers (the lax auditor group), or 0 otherwise. Next, *ManagerAgg* equals 1 if the participant has episodic knowledge as an aggressive manager (the aggressive manager group), or 0 otherwise. Lastly, *ManagerCon* equals 1 if the participant has episodic knowledge as a conservative manager (the conservative manager group), or 0 otherwise.

I run two regression models as shown in Table 11 to test my hypotheses. The first regression (Panel A) is a linear model that regresses SUPPORT on four dummy variables, *AuditorDil*, *AuditorLax*, *ManagerAgr* and *ManagerCon*. The second regression (Panel B) is a linear model that regresses MIDDIFF on the four dummy variables.

Table 11

Regression Models for Auditor Support in Task II (Main Study)

Panel A: Linear Model of Regressive SUPPORT on Types of Episodic Knowledge^a

$$SUPPORT = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		29.067	3.725	0.000	***
AuditorDil	+ (H1a)	15.140	4.859	0.002	***
AuditorLax	+ (H1a)	10.600	5.170	0.043	**
ManagerAgg	+ (H2a)	18.624	5.508	0.001	***
ManagerCon	0 (H2b)	4.977	6.122	0.418	
$\beta_1 - \beta_2$	+ (H1b)			0.342	
Prob > F		0.006	***		
R ²		0.057			

Panel B: Linear Model of Regressive MIDDIFF on Types of Episodic Knowledge^a

$$MIDDIFF = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		1.192	0.817	0.058	**
AuditorDil	- (H1a)	-2.676	0.956	0.006	***
AuditorLax	- (H1a)	-1.920	0.758	0.013	***
ManagerAgg	- (H2a)	-2.231	0.717	0.002	***
ManagerCon	0 (H2b)	-0.183	0.817	0.823	
$\beta_1 - \beta_2$	- (H1b)			0.374	
Prob > F		0.001	***		
R ²		0.024			

^a Variable definitions:

SUPPORT indicates the percentage in agreement with the auditor's decision to reject the manager's reported value.

MIDDIFF is the difference between the participant's estimate of commodity value and the middle point between the manager's reported value and the auditor's estimate.

AuditorDil equals 1 if the participant has episodic knowledge of the diligent auditor, or 0 otherwise.

AuditorLax equals 1 if the participant has episodic knowledge of the lax auditor, or 0 otherwise.

ManagerAgg equals 1 if the participant has episodic knowledge of the aggressive manager, or 0 otherwise.

ManagerCon equals 1 if the participant has episodic knowledge of the conservative manager, or 0 otherwise.

^b Clustered robust standard error is used to control for within-subject error (clustered variable = subject ID).

^c Two-sided probability.

H1a predicts that participants who have episodic knowledge from experience as a diligent or lax auditor will provide more auditor support, compared to those in the control group. As a result, I expect the coefficients of *AuditorDil* and *AuditorLax* to be positive for the first regression (SUPPORT) but negative for the second regression (MIDDIFF). According to Panel A of Table 11, episodic knowledge as a diligent and a lax auditor increases the participant's likelihood to side with the auditor (one-sided p-values = 0.001 and 0.022). In addition, Panel B shows that on average, the estimates of participants with episodic knowledge as a diligent and a lax auditor are closer to the auditor's estimate than the control group (one-sided p-values = 0.003 and 0.007). I test H1b, which predicts that episodic knowledge as a diligent auditor results in greater auditor support than the knowledge as a lax auditor, by comparing coefficients of *AuditorDil* and *AuditorLax* in both regressions. Using t-tests, I do not find any statistically significant difference (one-sided p-values = 0.171 and 0.187). Overall, the results, based on the classification by incentives, provide support for H1a but not H1b.

Next, I test H2a and H2b by examining the coefficients of *ManagerAgg* and *ManagerCon*, respectively. The hypotheses project that the level of auditor support of participants in the aggressive (conservative) manager group is more than (indifferent from) that of the control group. Thus, I expect the coefficient of *ManagerAgg* (*ManagerCon*) to be positive (zero) for the first regression but negative (zero) for the

second regression. According to Panels A and B of Table 11, episodic knowledge as an aggressive manager significantly increases participants' propensity to side with the auditor (one-sided p-value = 0.001) and makes the participants' estimates significantly closer to the auditor's estimate (one-sided p-value = 0.001). In contrast, episodic knowledge obtained from the role of a conservative manager does not significantly affect the percentage agreement with the auditor (p-value = 0.418) nor sway the participant's estimates toward the auditor's side (p-value = 0.823). Taken the results together, I conclude that episodic knowledge obtained from experience as a manager enhances auditor support during an auditor-manager conflict resolution *only if* he/she has previously been an aggressive manager.

6.4.3 Analysis Using Classification by Actions

I conduct additional analyses using the classification based on participants' behavior in the first (auditor-manager) task. First, I use the overall median average estimate (after taking out the publicly known integer) in the first task to split the auditor group (including both diligent and lax auditors) into diligent (below the median) and lax (above the median) auditors. I also reclassify managers using the overall median average reported value (after taking out the publicly known integer). Those whose average reported value is above (below) the median is considered aggressive (conservative). Then, I test my hypotheses in a similar way as in the previous section. The only difference is that I use the classification based on participants' actions, instead of their incentives. Lastly, I repeat the above the processes but using the group median average estimates and the group median average reported values in the first task for classifications

of auditors and managers. The auditor whose average reported value is below (above) the group median is classified as a diligent (lax) auditor. The manager whose average reported value is above (below) the group median is considered an aggressive (conservative) manager.

6.4.3.1 First Task (Auditor-Manager)

Table 12 delineates the results of the first (auditor-manager) task after the overall-median and the group-median splits. Panel A shows that as expected, both splits result in significant differences in managers' behavior. Aggressive managers' reported values are significantly higher than those of conservative managers (all one-sided p-values = 0.000). Panel B depicts that both splits also lead to significant differences in auditors' behavior. Diligent auditors' estimates are significantly lower than those of lax auditors (one-sided p-values of estimate less the publicly known integer and estimate less actual value for both splits = 0.000). In addition, diligent auditors tend to discount the manager's report to a larger extent than lax auditors (one-sided p-value = 0.003 for the overall-median split and 0.007 for the group-median split). Therefore, both categorizations are successful in varying experience and, consequently, episodic knowledge among groups of participants.

Table 12

**Summary of Task I Results after Overall-Median and Group Median Splits
(Main Study)**

Panel A: Manager's Report

<u>Variable</u>	<i>Overall Median Split</i>			<i>Group Median Split</i>		
	<u>Agg. Managers</u>	<u>Con. Managers</u>		<u>Agg. Managers</u>	<u>Con. Managers</u>	
Reported Value <i>less</i> Publicly Known Integer)	34.15 (10.89)	26.74 (11.12)	***	34.04 (11.32)	27.50 (11.01)	***
Reported Value <i>less</i> Actual Value	9.90 (8.27)	2.49 (8.03)	***	9.79 (8.52)	3.25 (8.20)	***
Reported Value <i>less</i> Middle of Possible Range ^a	8.90 (8.56)	1.49 (7.83)	***	8.79 (8.78)	2.25 (8.07)	***

Panel B: Auditor's Estimation and Propensity to Accept Manager's Report

<u>Variable</u>	<i>Overall Median Split</i>			<i>Group Median Split</i>		
	<u>Diligent Auditors</u>	<u>Lax Auditors</u>		<u>Diligent Auditors</u>	<u>Lax Auditors</u>	
Estimate <i>less</i> Publicly Known Integer	23.34 (8.81)	29.16 (10.12)	***	23.61 (8.83)	29.47 (10.24)	***
Estimate <i>less</i> Manager's Reported Value	-6.09 (11.13)	-2.30 (8.62)	***	-5.78 (10.70)	-2.25 (9.02)	***
Estimate <i>less</i> Actual Value	-0.91 (8.47)	4.91 (9.13)	***	-0.64 (8.38)	5.22 (9.30)	***
Acceptance of Manager's Report						
<i>Overall</i>	72.50% (44.90%)	68.80% (46.60%)		71.60% (45.40%)	69.40% (46.40%)	
<i>When Manager's Reported Value > Actual Value</i>	67.90% (47.10%)	68.20% (46.90%)		66.10% (44.70%)	70.00% (46.20%)	

^a Middle of Possible Range equals to the publicly known integer plus the middle value of the range containing the privately known integer.

*** The mean (clustered robust) difference is statistically different from zero at the 1 percent significance level (two-sided probability).

6.4.3.2 Second Task (Audit Committee)

I code four dummy variables, corresponding to the classification by participants' actions in the auditor-manager task (first, using the overall median and second, using the group medians). First, *AuditorDil* equals 1 if the participant has episodic knowledge as a diligent auditor, or 0 otherwise. Second, *AuditorLax* equals 1 if the participant has episodic knowledge as a lax auditor, or 0 otherwise. Next, *ManagerAgr* equals 1 if the participant has episodic knowledge as an aggressive manager, or 0 otherwise. Lastly, *ManagerCon* equals 1 if the participant has episodic knowledge as a conservative manager, or 0 otherwise.

For each type of median split, I run two regression models, similar to the original grouping (based on incentives), to test my hypotheses. Table 13 depicts the results after the overall-median split, while Table 14 delineates the results after the group-median split. The first regression in each table (Panel A) is a linear model that regresses SUPPORT on four dummy variables, *AuditorDil*, *AuditorLax*, *ManagerAgr* and *ManagerCon*. The second regression in each table (Panel B) is a linear model that regresses MIDDIFF on the four dummy variables.

Table 13

**Regression Models for Auditor Support in Task II after Overall-Median Split
(Main Study)**

Panel A: Linear Model of Regressive SUPPORT on Types of Episodic Knowledge^a

$$SUPPORT = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		29.067	3.725	0.000	***
AuditorDil	+(H1a)	16.317	4.782	0.001	***
AuditorLax	+(H1a)	9.650	5.158	0.064	**
ManagerAgg	+(H2a)	19.758	5.895	0.001	***
ManagerCon	0 (H2b)	4.525	5.592	0.420	
$\beta_1 - \beta_2$	+(H1b)			0.156	*
Prob > F		0.002	***		
R ²		0.066			

Panel B: Linear Model of Regressive MIDDIFF on Types of Episodic Knowledge^a

$$MIDDIFF = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		1.192	0.622	0.058	*
AuditorDil	-(H1a)	-3.225	0.957	0.001	***
AuditorLax	-(H1a)	-1.408	0.735	0.058	**
ManagerAgg	-(H2a)	-1.933	0.736	0.010	***
ManagerCon	0 (H2b)	-0.583	0.827	0.483	
$\beta_1 - \beta_2$	-(H1b)			0.030	**
Prob > F		0.006	***		
R ²		0.025			

^a Variable definitions:

SUPPORT indicates the percentage in agreement with the auditor's decision to reject the manager's reported value.

MIDDIFF is the difference between the participant's estimate of commodity value and the middle point between the manager's reported value and the auditor's estimate.

AuditorDil equals 1 if the participant has episodic knowledge from prior experience as a diligent auditor, or 0 otherwise.

AuditorLax equals 1 if the participant has episodic knowledge from prior experience as a lax auditor, or 0 otherwise.

ManagerAgg equals 1 if the participant has episodic knowledge from prior experience as an aggressive manager, or 0 otherwise.

ManagerCon equals 1 if the participant has episodic knowledge from prior experience as a conservative manager, or 0 otherwise.

^b Clustered robust standard error is used to control for within-subject error (clustered variable = subject ID).

^c Two-sided probability.

Table 14

**Regression Models for Auditor Support in Task II after Group-Median Split
(Main Study)**

Panel A: Linear Model of Regressive SUPPORT on Types of Episodic Knowledge^a

$$SUPPORT = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		29.067	3.725	0.000	***
AuditorDil	+ (H1a)	16.698	4.627	0.000	***
AuditorLax	+ (H1a)	8.443	5.358	0.118	*
ManagerAgg	+ (H2a)	21.017	6.237	0.001	***
ManagerCon	0 (H2b)	4.880	5.311	0.360	
$\beta_1 - \beta_2$	+ (H1b)			0.084	**
Prob > F		0.001	***		
R ²		0.072			

Panel B: Linear Model of Regressive MIDDIFF on Types of Episodic Knowledge^a

$$MIDDIFF = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		1.192	0.622	0.058	*
AuditorDil	- (H1a)	-3.169	0.908	0.001	***
AuditorLax	- (H1a)	-1.275	0.752	0.093	**
ManagerAgg	- (H2a)	-1.840	0.797	0.023	**
ManagerCon	0 (H2b)	-0.783	0.781	0.319	
$\beta_1 - \beta_2$	- (H1b)			0.018	***
Prob > F		0.008	***		
R ²		0.024			

^a Variable definitions:

SUPPORT indicates the percentage in agreement with the auditor's decision to reject the manager's reported value.

MIDDIFF is the difference between the participant's estimate of commodity value and the middle point between the manager's reported value and the auditor's estimate.

AuditorDil equals 1 if the participant has episodic knowledge from prior experience as a diligent auditor, or 0 otherwise.

AuditorLax equals 1 if the participant has episodic knowledge from prior experience as a lax auditor, or 0 otherwise.

ManagerAgg equals 1 if the participant has episodic knowledge from prior experience as an aggressive manager, or 0 otherwise.

ManagerCon equals 1 if the participant has episodic knowledge from prior experience as a conservative manager, or 0 otherwise.

^b Clustered robust standard error is used to control for within-subject error (clustered variable = subject ID).

^c Two-sided probability.

Because the overall-median and group-median splits lead to the same conclusion, I discuss the results of both categorizations simultaneously.³⁶ H1a predicts that participants that have episodic knowledge from direct experience as a diligent or lax auditor provide more auditor support, compared to those in the control group. Therefore, I expect the coefficients of *AuditorDil* and *AuditorLax* to be positive for the first regression (SUPPORT) but negative for the second regression (MIDDIFF). According to Tables 13 and 14, episodic knowledge from prior experience as a diligent auditor increases tendency to side with the auditor (one-sided p-values = 0.001 and 0.000) and make a conservative estimate (one-sided p-values = 0.001 and 0.001). Episodic knowledge from prior experience as a lax auditor also raises likelihood to side with the auditor (one-sided p-values = 0.032 and 0.059) and estimate a commodity value more conservatively (one-sided p-values = 0.029 and 0.047).

H1b predicts that episodic knowledge from direct experience as a diligent auditor results in greater auditor support than the knowledge from direct experience as a lax auditor. Hence, I compare the coefficients of *AuditorDil* and *AuditorLax* in all regressions. Using t-tests, I find that episodic knowledge as a diligent auditor enhances auditor support to a greater extent than the knowledge as a lax auditor (one-sided p-

³⁶ For each test, the p-value of the overall-median split is reported first, followed by the p-value of the group-median split.

values = 0.078 and 0.042 for SUPPORT Model and 0.015 and 0.009 for MIDDIFF Model). Hence, I conclude that episodic knowledge obtained from prior experience as an auditor, especially a diligent one, makes participants more likely to support the auditor in the audit committee task. It is also notable while the effects of the two types of episodic knowledge are not significantly different from each other in the preliminary study and the main study using the classification by incentives, the classification by actions in the main study can capture the significant difference between the two types of episodic knowledge. For the preliminary study, a possible explanation is that the manager knows the true value with certainty, so the variation in auditors' judgments does not provide sufficient power to detect the difference. The failure to detect the difference between episodic knowledge as a diligent and a lax auditor in the main study when the classification based on incentives is used signals the importance of physical aspects in an encoded episode. Enactment and actions should be an integral part of episodic knowledge as an auditor and provide an incremental value over the psychological elements of episodic knowledge.

Next, I test H2a and H2b by examining the coefficients of *ManagerAgg* and *ManagerCon*, respectively. The hypotheses prescribe that the level of auditor support of participants in the aggressive (conservative) manager group is more than (not different from) that of the control group. Hence, I expect the coefficient of *ManagerAgg* (*ManagerCon*) to be positive (zero) for the first regression but negative (zero) for the second regression. According to Panel A of Tables 13 and 14, episodic knowledge as an aggressive manager significantly increases participants' propensity to side with the auditor (one-sided p-values = 0.001 and 0.001) and sways the participants' estimates closer to the auditor's estimate (one-sided p-values = 0.005 and 0.012). In contrast,

episodic knowledge as a conservative manager does not significantly affect the percentage agreement with the auditor (one-sided p-values = 0.210 and 0.180) nor move the participant's estimates closer to the auditor's (one-sided p-value = 0.242 and 0.160). In summary, episodic knowledge obtained from experience as a manager enhances auditor support during an auditor-manager conflict resolution *only if* he/she has previously been an aggressive manager.

6.4.4 Robustness Check

Although I use the experimental method to ensure high internal validity, the fact that episodic knowledge is not directly observable may cast some doubt whether the documented variation among the participant groups are caused by the different levels of episodic knowledge. Hence, I run additional analyses to check the robustness of the experimental results after controlling for other factors that might affect the participants' judgments and decisions in the audit committee task.

First, I control for the possible confounding effect of group classification, which leads to favoritism of the in-group over the out-group (Tajfel et al. 1971). For example, the participants designated as an auditor in the auditor-manager task might choose to side with the auditor in the audit committee task just because they categorize the auditor as one of "us" but the manager as one of "them." To control for the possible effect of intergroup differentiation, I add a dummy variable *AuditorClassification*, which equals 1 for the participant designated as an auditor in the auditor-manager task or 0 otherwise.³⁷

³⁷ Although participants in the control group did not make any decision in the auditor-manager task, they were still randomly designated as an auditor, an aggressive manager, or a conservative manager.

Next, I control for the participants' risk attitudes and levels of semantic knowledge. Although I do not find a significant difference in risk attitudes and semantic knowledge across experimental groups, their decisions in the audit committee task might have been affected by these two attributes.³⁸ I, thus, include *ConceptKnow* and *RiskAverse* as covariates. *ConceptKnow* is a proxy for the level of task-relevant semantic knowledge (before entering the audit committee task), which equals the participant's score on the conceptual knowledge test. *RiskAverse* is a proxy for risk aversion, based on a measure adapted from Holt and Laury (2002).³⁹

Lastly, I control for the possible effect of frequency knowledge that participants in the auditor and the manager groups may have over those in the control group. In addition to episodic knowledge, frequency knowledge (i.e., the probabilities of given events occurring and co-occurring) may be accumulated through experience (Baddeley 1993). Direct experience in the auditor-manager task may increase frequency knowledge about the behavior of an auditor and a manager, which, in turn, possibly affects the degree of auditor support. Hence, I include *AggFreq* and *TooConFreq*, proxies for differential frequency knowledge comparative to the control group, as covariates.⁴⁰ *AggFreq* is coded as the number of times the participant personally experienced an aggressive report by the manager (i.e., a report containing an unacceptable error from the auditor's perspective) in auditor-manager interactions. In contrast, *TooConFreq* is coded as the number of times the participant personally experienced an incorrect rejection by the auditor (i.e., the auditor rejects the manager's report containing an acceptable error).

³⁸ I do not make explicit predictions on how these attributes might influence the participants' levels of auditor support. While the auditor is induced to be more objective, the manager actually has more information on the commodity value.

³⁹ A higher score depicts a higher degree of risk aversion.

⁴⁰ The participants in the control group are assigned *AggFreq* and *TooConFreq* of 0.

For robustness check, I add the above control variables to each regression model in Tables 11, 13 and 14. The results are shown in Tables 15, 16 and 17 respectively.

Table 15
Robustness Check - Regression Models for Auditor Support in Task II
(Main Study)

Panel A: Linear Model of Regressive SUPPORT on Types of Episodic Knowledge and Covariates^a

$$SUPPORT = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon + \beta_i Co\ var\ iate_i$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		66.568	16.548	0.000	***
AuditorDil	+ (H1a)	17.943	7.524	0.019	***
AuditorLax	+ (H1a)	15.680	7.730	0.045	**
ManagerAgg	+ (H2a)	11.870	6.869	0.087	**
ManagerCon	0 (H2b)	0.858	6.745	0.899	
AuditorClassification		-8.572	7.112	0.231	
ConceptKnow		-10.830	4.581	0.020	**
RiskAverse		-0.441	1.159	0.704	
AggFreq		-0.097	2.043	0.962	
TooConFreq		2.025	2.384	0.398	
$\beta_1 - \beta_2$	+ (H1b)			0.615	
Prob > F		0.006	***		
R ²		0.074			

Panel B: Linear Model of Regressive MIDDIFF on Types of Episodic Knowledge and Covariates^a

$$MIDIFF = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon + \beta_i Covariate_i$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>
Intercept		-2.987	3.865	0.442
AuditorDil	- (H1a)	-2.759	0.923	0.004 ***
AuditorLax	- (H1a)	-2.125	0.791	0.009 ***
ManagerAgg	- (H2a)	-2.640	1.131	0.022 **
ManagerCon	0 (H2b)	-0.796	1.216	0.514
AuditorClassification		-0.409	1.069	0.703
ConceptKnow		1.726	1.213	0.158
RiskAverse		-0.128	0.162	0.433
AggFreq		0.281	0.217	0.199
TooConFreq		0.244	0.372	0.513
$\beta_1 - \beta_2$	- (H1b)			0.400
Prob > F		0.013 **		
R ²		0.028		

^a Variable definitions:

SUPPORT indicates the percentage in agreement with the auditor's decision to reject the manager's reported value.

MIDIFF is the difference between the participant's estimate of commodity value and the middle point between the manager's reported value and the auditor's estimate.

AuditorDil equals 1 if the participant has episodic knowledge from prior experience as a diligent auditor, or 0 otherwise.

AuditorLax equals 1 if the participant has episodic knowledge from prior experience as a lax auditor, or 0 otherwise.

ManagerAgg equals 1 if the participant has episodic knowledge from prior experience as an aggressive manager, or 0 otherwise.

ManagerCon equals 1 if the participant has episodic knowledge from prior experience as a conservative manager, or 0 otherwise.

AuditorClassification equals 1 if the participant is designated as an auditor in the auditor-manager task.

ConceptKnow is the score on conceptual task-knowledge test.

RiskAverse indicates a degree of risk aversion.

AggFreq is the number of first-hand encounters with the manager's aggressive reporting in the auditor-manager task.

TooConFreq is the number of first-hand encounters with the auditor's overly conservative judgment in the auditor-manager task.

^b Clustered robust standard error is used to control for within-subject error (clustered variable = subject ID).

^c Two-sided probability.

Table 16

**Robustness Check - Regression Models for Auditor Support in Task II after
Overall-Median Split (Main Study)**

**Panel A: Linear Model of Regressive SUPPORT on Types of Episodic Knowledge
and Covariates^a**

$$SUPPORT = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon + \beta_i Co\ var\ iate_i$$

<u>Independent</u>	<u>Predicted</u>		<u>Standard</u>		
<u>Variable</u>	<u>Sign</u>	<u>Coefficient</u>	<u>Errors</u> ^b	<u>Probability</u> ^c	
Intercept		65.090	16.307	0.000	***
AuditorDil	+ (H1a)	21.784	7.392	0.004	***
AuditorLax	+ (H1a)	15.354	7.948	0.056	**
ManagerAgg	+ (H2a)	15.399	7.493	0.043	**
ManagerCon	0 (H2b)	0.725	6.379	0.910	
AuditorClassification		-8.678	7.111	0.225	
ConceptKnow		-10.726	4.487	0.019	**
RiskAverse		-0.235	1.135	0.836	
AggFreq		-1.475	2.146	0.494	
TooConFreq		2.397	2.171	0.272	
$\beta_1 - \beta_2$	+ (H1b)			0.145	*
Prob > F		0.002	***		
R ²		0.087			

Panel B: Linear Model of Regressive MIDDIFF on Types of Episodic Knowledge and Covariates^a

$$MIDIFF = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon + \beta_i Co\ var\ iate_i$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		-2.839	3.683	0.443	
AuditorDil	- (H1a)	-3.320	0.959	0.001	***
AuditorLax	- (H1a)	-1.658	0.835	0.050	**
ManagerAgg	- (H2a)	-2.446	1.205	0.045	**
ManagerCon	0 (H2b)	-1.050	1.197	0.383	
AuditorClassification		-0.398	1.068	0.710	
ConceptKnow		1.722	1.124	0.129	
RiskAverse		-0.151	0.165	0.362	
AggFreq		0.316	0.244	0.200	
TooConFreq		0.161	0.353	0.648	
$\beta_1 - \beta_2$	- (H1b)			0.034	**
Prob > F		0.026	**		
R ²		0.030			

^a Variable definitions:

SUPPORT indicates the percentage in agreement with the auditor's decision to reject the manager's reported value.

MIDIFF is the difference between the participant's estimate of commodity value and the middle point between the manager's reported value and the auditor's estimate.

AuditorDil equals 1 if the participant has episodic knowledge from prior experience as a diligent auditor, or 0 otherwise.

AuditorLax equals 1 if the participant has episodic knowledge from prior experience as a lax auditor, or 0 otherwise.

ManagerAgg equals 1 if the participant has episodic knowledge from prior experience as an aggressive manager, or 0 otherwise.

ManagerCon equals 1 if the participant has episodic knowledge from prior experience as a conservative manager, or 0 otherwise.

AuditorClassification equals 1 if the participant is designated as an auditor in the auditor-manager task.

ConceptKnow is the score on conceptual task-knowledge test.

RiskAverse indicates a degree of risk aversion.

AggFreq is the number of first-hand encounters with the manager's aggressive reporting in the auditor-manager task.

TooConFreq is the number of first-hand encounters with the auditor's overly conservative judgment in the auditor-manager task.

^b Clustered robust standard error is used to control for within-subject error (clustered variable = subject ID).

^c Two-sided probability.

Table 17

**Robustness Check - Regression Models for Auditor Support in Task II after
Group-Median Split (Main Study)**

**Panel A: Linear Model of Regressive SUPPORT on Types of Episodic Knowledge
and Covariates^a**

$$SUPPORT = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon + \beta_i Co\ var\ iate_i$$

<u>Independent</u>	<u>Predicted</u>		<u>Standard</u>		
<u>Variable</u>	<u>Sign</u>	<u>Coefficient</u>	<u>Errors</u> ^b	<u>Probability</u> ^c	
Intercept		64.748	16.044	0.000	***
AuditorDil	+ (H1a)	20.739	7.241	0.005	***
AuditorLax	+ (H1a)	12.929	7.943	0.107	*
ManagerAgg	+ (H2a)	14.938	7.501	0.049	**
ManagerCon	0 (H2b)	0.088	6.481	0.989	
AuditorClassification		-8.701	7.118	0.225	
ConceptKnow		-10.404	4.653	0.028	**
RiskAverse		-0.326	1.125	0.773	
AggFreq		-0.689	2.007	0.732	
TooConFreq		2.912	2.220	0.193	
$\beta_1 - \beta_2$	+ (H1b)			0.090	**
Prob > F		0.001	***		
R ²		0.092			

Panel B: Linear Model of Regressive MIDDIFF on Types of Episodic Knowledge and Covariates^a

$$MIDIFF = \beta_0 + \beta_1 AuditorDil + \beta_2 AuditorLax + \beta_3 ManagerAgg + \beta_4 ManagerCon + \beta_i Co\ var\ iate_i$$

<u>Independent Variable</u>	<u>Predicted Sign</u>	<u>Coefficient</u>	<u>Standard Errors^b</u>	<u>Probability^c</u>	
Intercept		-2.786	3.700	0.453	
AuditorDil	- (H1a)	-3.166	0.928	0.001	***
AuditorLax	- (H1a)	-1.253	0.844	0.141	*
ManagerAgg	- (H2a)	-1.961	1.305	0.136	*
ManagerCon	0 (H2b)	-1.239	1.163	0.290	
AuditorClassification		-0.394	1.069	0.713	
ConceptKnow		1.746	1.153	0.133	
RiskAverse		-0.171	0.152	0.264	
AggFreq		0.150	0.239	0.533	
TooConFreq		0.184	0.352	0.602	
$\beta_1 - \beta_2$	- (H1b)			0.013	***
Prob > F		0.046	**		
R ²		0.029			

^a Variable definitions:

SUPPORT indicates the percentage in agreement with the auditor's decision to reject the manager's reported value.

MIDIFF is the difference between the participant's estimate of commodity value and the middle point between the manager's reported value and the auditor's estimate.

AuditorDil equals 1 if the participant has episodic knowledge from prior experience as a diligent auditor, or 0 otherwise.

AuditorLax equals 1 if the participant has episodic knowledge from prior experience as a lax auditor, or 0 otherwise.

ManagerAgg equals 1 if the participant has episodic knowledge from prior experience as an aggressive manager, or 0 otherwise.

ManagerCon equals 1 if the participant has episodic knowledge from prior experience as a conservative manager, or 0 otherwise.

AuditorClassification equals 1 if the participant is designated as an auditor in the auditor-manager task.

ConceptKnow is the score on conceptual task-knowledge test.

RiskAverse indicates a degree of risk aversion.

AggFreq is the number of first-hand encounters with the manager's aggressive reporting in the auditor-manager task.

TooConFreq is the number of first-hand encounters with the auditor's overly conservative judgment in the auditor-manager task.

^b Clustered robust standard error is used to control for within-subject error (clustered variable = subject ID).

^c Two-sided probability.

6.4.5 Post Experiment Questionnaire (PEQ) Data Analysis

The PEQ data show that all participants understand their role in the experiment and that they can remember the type of manager (aggressive or conservative) involved in their session of the auditor-manager task. The data also indicate no statistical difference in gender and education among the participants.

I include a series of questions (Appendix E) to shed more light into the processes underlying participants' judgment in the audit committee task. I focus on the questions pertaining to direct experience and episodic knowledge as an auditor or a manager. Questions 13 to 15 ask participants to evaluate the benefit of prior experience in the role of an auditor, an aggressive manager, and a conservative manager on their performance in the audit committee task. In addition, Questions 22 to 24 measure the degree to which each participant considers the perspectives of an auditor, an aggressive manager, and a conservative manager before making decisions in the audit committee task. All responses are in the form of 11-point Likert scale ranging from 1 (not at all) to 11 (very much). Panel A of Table 18 shows the average scores by group (using the original groups, after the overall-median split, and after the group-median split). I report p-values from the between-group comparison in Panel B.

Table 18

Post-Experiment Questionnaire Analysis (Main Study)

Panel A: Average Scores by (1) Original Groups, (2) After Overall-Median Split and (3) After Group-Median Split

<u>Question</u>	<u>Control Group</u>	<u>Diligent Auditor</u>	<u>Lax Auditor</u>	<u>Agg. Manager</u>	<u>Con. Manager</u>	<u>Total Mean</u>
<i>Benefit of Prior Experience as a (an):</i>						
Auditor	6.30	7.10	7.37	6.43	5.47	6.54
	6.30	7.10	7.35	6.30	5.65	6.54
	6.30	7.14	7.33	6.02	5.94	6.54
Aggressive Manager	5.85	5.86	5.84	7.00	5.42	6.01
	5.85	5.95	5.75	6.55	5.95	6.01
	5.85	6.00	5.67	6.76	5.83	6.01
Conservative Manager	6.85	5.24	6.58	6.48	6.89	6.39
	6.85	4.80	6.95	6.35	7.00	6.39
	6.85	4.83	7.13	5.94	7.27	6.39
<i>Extent to which One Considers Perspective of:</i>						
Auditor	5.65	6.52	6.53	5.76	4.95	5.89
	5.65	6.80	6.25	5.50	5.25	5.89
	5.65	6.77	6.22	5.76	5.06	5.89
Aggressive Manager	6.20	8.29	6.47	6.90	5.74	6.75
	6.20	7.55	7.30	7.10	5.60	6.75
	6.20	7.55	7.28	6.44	6.27	6.75
Conservative Manager	7.15	6.62	6.74	6.86	7.95	7.05
	7.15	6.60	6.75	7.30	7.45	7.05
	7.15	6.41	7.00	6.89	7.77	7.05

Panel B: Between Groups Comparison (Prob > F)

<u>Question</u>	<u>Original Groups</u>	<u>After Overall- Median Split</u>	<u>After Group- Median Split</u>
<i>Benefit of Prior Experience as a (an):</i>			
Auditor	0.086 *	0.128	0.124
Aggressive Manager	0.344	0.877	0.569
Conservative Manager	0.211	0.028 **	0.016 **
<i>Extent to which One Considers Perspective of:</i>			
Auditor	0.230	0.276	0.337
Aggressive Manager	0.011 **	0.063 *	0.349
Conservative Manager	0.415	0.762	0.651

I expect participants who have prior experience as an auditor or a manager to value such experience and utilize it in the audit committee task. Using the original group classification, on average, participants in the auditor role value the auditor experience more than the others. I perform post-hoc tests using Tukey method and find that the auditor encountering conservative manager (lax auditor) group appreciates the auditor experience more than the conservative manager group ($p\text{-value} = 0.079$). Although the aggressive manager group has the highest average score on the importance of the aggressive manager experience, I do not find any significant difference among groups, possibly due to the small sample size. Lastly, the conservative manager group cherishes the conservative manager experience the most, while the diligent auditor group does not think highly of such experience. The post-hoc tests after both overall-median and group-median splits reveal that the diligent auditor group rates the importance of the conservative manager experience significantly lower than the conservative manager ($p\text{-values} = 0.043$ and 0.019), lax auditor ($p\text{-values} = 0.051$ and 0.115), and control groups ($p\text{-values} = 0.071$ and 0.091).

I conjecture that the episodic knowledge should enhance perspective taking ability when reconciling an auditor-manager disagreement. Naturally, prior experience in a particular role should invoke one to consider the problem from the perspective in such role. On average, the auditor (both diligent and lax) group takes into account the auditor's perspective more than the others, while the conservative group does the same for the conservative manager's perspective. However, the between-group comparison does not indicate any significant difference among groups. Contrary to my conjecture, the diligent auditor group, not the aggressive manager group, considers the aggressive manager's

perspective more than the rest. The post-hoc tests denote that the diligent auditor group considers the aggressive manager's perspective to the larger extent than the conservative manager group based on the original classification and the overall-median split (p-values = 0.008 and 0.087).

The overall results suggest that participants tend to value their prior experience, which in turn increases the likelihood to utilize such experience in the audit committee task. In addition, they seem to transcend their perspective from the auditor-manager task into the audit committee task. This is consistent with my expectation that episodic knowledge obtained from prior experience is retrieved and it allows participants to re-experience past encounters before anticipating future outcomes. The finding that the diligent auditor group is the most sensitive to the aggressive manager's perspective does not contradict to the notion of episodic knowledge. Episodic knowledge from the auditor role should lead one to understand how it feels to be in the auditor's shoes. In particular, auditors, especially the relatively more diligent ones, have to be vigilant about the manager's incentive to report aggressively in their interactions with managers. Also, the difference in audit committee judgment of the diligent and lax auditor groups may result from more sensitivity to the manager's incentive to report aggressively. However, the difference in audit committee judgment between the aggressive and conservative manager groups likely result from the egocentric bias which leads them to think that the manager in the audit committee task behaves similarly to themselves in past episodes.

CHAPTER 7

SUMMARY AND CONCLUSION

I use laboratory experiments to investigate the effect of episodic knowledge acquired from previous experience as an auditor or a manager on individuals' judgment in reconciling auditor-manager disagreements. When there is a conflict between the auditor and the manager, episodic knowledge as an auditor, especially a diligent one, can improve audit committee members' propensity to support the auditor. Meanwhile, episodic knowledge of a manager only increases the level of auditor support when the manager has experience of having been an aggressive manager. This is akin to companies hiring white-collar criminals to prevent wrongdoing in the future or organizations hiring former drug-addicts as an addiction recovery coach. These people can take perspectives of the criminal or the addict accurately, so they can anticipate actions of the criminal or the addict and act accordingly.

This paper contributes to accounting literature and practice in several ways. First, the results of my experiments provide an additional explanation to the findings that financial experts qualified by different definitions (e.g., accounting vs. non-accounting) may diversely affect the firm's financial reporting. That is, their levels of relevant episodic knowledge differ. My results suggest that episodic knowledge from direct experience as an auditor benefits audit committee members' judgment in resolving auditor-manager conflicts. Appointing accounting financial experts may be justified due to the potential benefit of the experts' superior episodic knowledge, in addition to their semantic knowledge. Furthermore, the original definition of financial expertise, which

requires direct accounting work experience, could be favorable because it ensures a higher level of accounting-related episodic knowledge. My results suggest that episodic knowledge as a manager can also improve the audit committee's task performance. However, the benefit may be limited only to those who previously reported aggressively. Practitioners can incorporate these findings for effective training and selection of audit committee members.

Despite possible important implications to the definition of financial expertise, my results are subject to some caveats and generalizations should be drawn with caution. First, my paper only focuses on episodic knowledge pertaining to strategic interactions between the auditor and the manager (e.g., see Bowlin et al. 2009) but abstracts away other important conceptual knowledge (e.g., technical knowledge on accounting, auditing and management). Second, although the experimental design allows me to examine the impact of episodic knowledge obtained from experience as an auditor and a manager separately,⁴¹ the results can be sensitive to the protocol used in the experiment. In this experiment, participants are provided limited information and there is considerable randomness that determines their task performance. The influence of episodic knowledge on individuals' judgment could differ in a setting involving more information and less uncertainty.

It is improper to conclude from the analyses that episodic knowledge from prior experience as an aggressive manager can be a substitute for episodic knowledge from direct experience as an auditor. Although their effects seem comparable, episodic knowledge as an auditor may have a significant incremental value beyond that offered by

⁴¹ "Accounting financial experts" can have work experience in both accounting and management positions. Hence, it is very difficult to disentangle the effects of the auditor's perspective and the manager's perspective using archival data.

episodic knowledge as an aggressive manager. One possible way to investigate this question is to compare task performance of individuals who possess both kinds of knowledge and the performance of those who only have one kind of episodic knowledge. I leave this issue for future study.

Future research can disentangle the different components of episodic knowledge obtained from direct experience as an auditor or a manager. Using classifications by incentives and actions to categorize auditors and managers, I find that past actions and mental states associated with the recalled episodes can be the key facets of episodic knowledge that contribute to the experimental results. Elements in episodic knowledge can be differently important and possibly interact with one another, and, hence, warrant future research. Episodic knowledge may also interact with semantic knowledge in certain tasks. Future research can also explore conditions that boost or mitigate the usefulness of episodic knowledge in audit committee members' judgment.

APPENDIX A

EXPERIMENTAL INSTRUCTIONS (PRELIMINARY STUDY)

Welcome to the experiment! In this experiment, you will have the opportunity to accumulate money in Liras, an experimental currency, performing two simple tasks. At the end of the experiment, your Liras obtained from the two tasks will be tallied and you will be paid \$1 for every 5 Liras earned. Your on-time arrival fee and money converted from the accumulated Liras will be paid to you privately in cash at the end of the experiment. During the experiment, please do not talk, exclaim, or communicate with other participants. If you have any question, please raise your hand and the experimenter will assist you.

During the experiment, you will be identified only by a participant number, which will be given to you later. All decisions you make in the experiment will be anonymous, and no one else, including the experimenter, can trace them back to you.

Task One

You will take the role of Sender or Receiver. Your role will be announced after the instructions are completed. The task is repeated for four rounds and your role will be the same in each round. You will be paired with a person in the other role. You will be paired with a different person in each round. You will not be told who these people are either during or after the experiment.

In this task, there is a commodity of which actual value is determined in Lira.

The Actual Commodity Value

- The actual commodity value is the sum of two numbers randomly generated from a specified range of integers. We will call these two numbers Integer I and Integer II. Each number will be generated from integers ranging from 0 to 50. The midpoint of the range is 25. All the integers within that range (i.e. 0, 1, 2, ..., 48, 49, 50) are equally likely to be chosen.
- The actual commodity value (the sum of Integer I and Integer II) can take any integer value from 0 to 100 Liras.
- The actual commodity value will be determined at the beginning of each round. So the actual commodity value changes in each round.

The Role of Sender

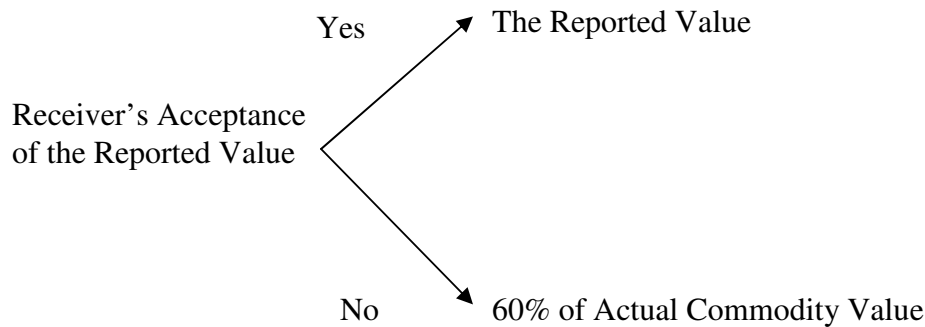
Sender will give advice to the Receiver regarding how to estimate the commodity value. The Sender will submit the reported value to the Receiver using a communication sheet (as shown on page 125).

Game Rules

- The Sender will be informed of Integer I, Integer II and the actual commodity value (the sum of Integer I and Integer II).
- The Sender can report any value from 0 to 100. The Sender's reported value will be passed to the Receiver. The Receiver may either accept or reject the Sender's reported value.
- At the end of each round, the Sender will be informed of the Liras accumulated in that round via a feedback sheet (as shown on page 126).

Payoff (Liras)

The Sender accumulates points according to the following payoff tree:



1. If the Receiver accepts the Sender's reported value, the Sender will receive money (in Lira) equal to the reported value, irrespective of the actual commodity value.
2. If the Receiver does not accept the Sender's reported value, the Sender will receive money (in Lira) equal to 60% of the actual commodity value.

Example

Suppose the actual commodity value is 60 Liras and the Sender's reported value of the commodity is 68 Liras.

1. If the Sender's reported value is accepted by the Receiver, the Sender's payoff for the round is 68 Liras.
2. If the Sender's reported value is not accepted by the Receiver, the Sender's payoff for the round is $60\% * 60 = 36$ Liras.

The Role of Receiver

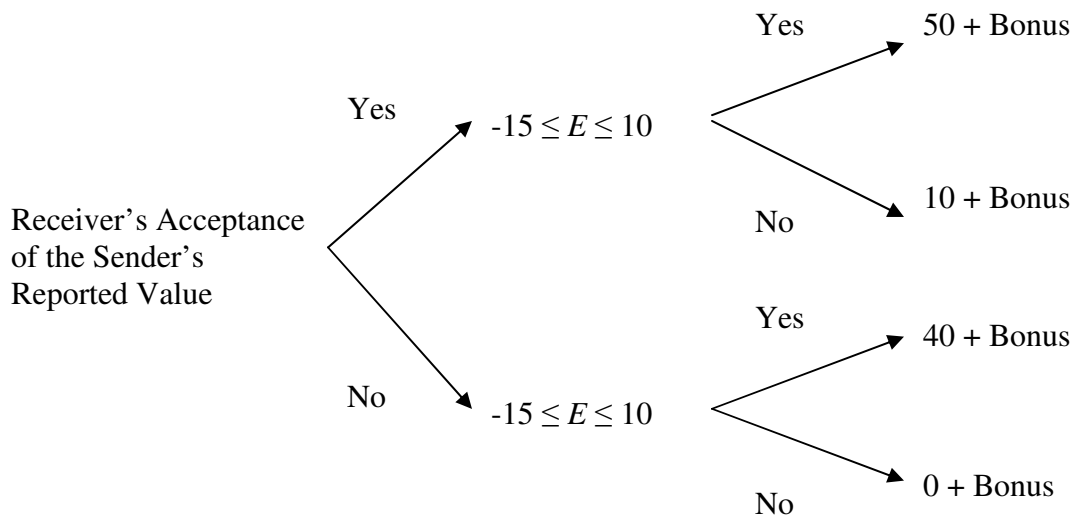
The role of Receiver is to estimate the commodity value in Lira.

Game Rules

- The Receiver will be informed of Integer I but Integer II remains unknown to the Receiver.
- The Receiver will get a communication sheet from the Sender (as shown on page 125), who knows the actual value of the commodity but is free to report any value from 0 to 100, regardless of the actual commodity value. The communication sheet will contain the Sender's reported value.
- After receiving the communication sheet, the Receiver makes **two** decisions:
 - (1) The Receiver will record his/her own estimate of the commodity value. This estimate will be used to calculate bonus points, which are not revealed to the Receiver. The closer the estimate is to the actual commodity value, the more bonus points the Receiver will earn for the round.
 - (2) The Receiver chooses whether to accept the Sender's reported value or not. This decision will determine the Receiver's **final estimate** of commodity value. If the Receiver accepts the Sender's reported value, the reported value will be used as the Receiver's final estimate. If the Receiver does not accept the Sender's reported value, the Receiver's own estimate will be used as the final estimate.
- At the end of each round, the Receiver will be informed of the points accumulated in that round (excluding the bonus) via a feedback sheet (as shown on page 127).

Payoff (Liras)

- Estimation Error (E) = Final Estimate – Actual Commodity Value
- The Receiver accumulates money (in Lira) according to the following payoff tree:



- Bonus = $(100 - |\text{Receiver's Own Estimate} - \text{Actual Commodity Value}|)/10$.

Example 1

Suppose Integer I is 25 and the Sender's reported value is 68 Liras. The Receiver records his or her own estimate of 50 Liras. Then the Receiver rejects the Sender's reported value so the Receiver's own estimate of 50 Liras becomes the final estimate.

1. If the commodity's actual value is 60 Liras, the Receiver's estimate error (E) is $50 - 60 = -10$. Because E falls within the range of $[-15, 10]$, the Receiver's payoff for the round is 40 Liras plus the bonus .
2. The bonus is computed as $(100 - |50-60|)/10 = 9$ Liras.
3. The Receiver earns 49 Liras for the round $(40 + 9)$.

Example 2

Assume the same set of information from Example 1, except that the commodity's actual value is 35 Liras.

1. Now the Receiver's estimate error (E) is $50 - 35 = 15$. Because E falls outside the range of $[-15, 10]$, the Receiver's payoff for the round is 0 Lira plus the bonus.
2. The bonus is computed as $(100 - |50-35|)/10 = 8.5$ Liras.
3. The Receiver earns 8.5 Liras for the round $(0 + 8.5)$.

Determination of Your Role

Now, please take one of the cards that the experimenter is passing out. On the card, the letter (R or S) indicates which player (Receiver or Sender) you will be in this task, and the number is your participant number. Please keep the card only to yourself. Do not show it to anyone else.

Experimental Procedures

- (1) Form Distribution
 - 1.1 Sender will be given a communication sheet, a feedback sheet and an envelope.
 - 1.2 Receiver will be given a feedback sheet and an envelope.
- (2) Information Distribution
 - 2.1 The Sender will be informed of Integer I, Integer II, and the actual commodity value (the sum of Integer I and Integer II).
 - 2.2 The Receiver will be informed of Integer I.
- (3) Sender's Actions
 - 3.1 The Sender has 30 seconds to indicate reported value on the top section of the communication sheet. The reported value may be any integer from 0 to 100.
 - 3.2 When you finish, please put your communication sheet and feedback sheet in the envelope and raise your hand. The experimenter will collect the envelope from you.
- (4) Receiver's Actions
 - 4.1 The Receiver will be given a communication sheet. The top section of the communication sheet contains the Sender's reported value for the round, and the bottom section is for the Receiver's decisions. You will have 30 seconds to answer two questions.
 - 4.2 Think about your own estimate of the commodity value and fill in the bottom of the communication sheet. Your estimate may be any integer from 0 to 100.
 - 4.3 Check (a) if you want to accept the Sender's reported value and use it as the final estimate, or (b) if you reject the reported value and want to use your own estimate as the final estimate.
 - 4.4 When you finish, please put your communication sheet in the envelope and raise your hand. The experimenter will collect the envelope from you.
- (5) Feedback
 - 5.1 All envelopes will be given to an assistant, who has minimal knowledge of the experiment. The assistant will calculate your payoff for the round, complete your feedback sheet, and put your feedback sheet back in the envelope. However, Receiver's bonus points will not be revealed.
 - 5.2 The envelopes will be passed to the experimenter and the experimenter will return your envelope to you.
 - 5.3 You will have a moment to review your feedback sheet before the next round of the experiment begins. This task is repeated for five rounds.
- (6) Accumulated Points

- 6.1 After the 4th round is done, the experimenter will randomly select an integer between 1 to 4, denoted i . Your accumulated Liras for this task will be the Liras you received in the i^{th} round. However, you will not be informed of your accumulated points until the end of the experiment.
- 6.2 Please wait patiently until the experimenter gives you instructions for your next task.

Communication Sheet

Round #_____

.....

Sender #_____

REPORTED VALUE

The Sender's reported value of the commodity is
_____ Liras.

.....

Receiver #_____

RECEIVER'S DECISION

I. The Receiver's own estimate of the commodity
value is _____ Liras.

II. Choose only one option below (check the
appropriate space)

____ (a) Accept the Sender's reported value and
use it as my final estimate of the
commodity value

____ (b) Reject the Sender's reported value and use
my own estimate of the commodity value
as the final estimate.

Sender #_____ (Enter your participant number)

Feedback Sheet (Sender)

Round	The Actual Commodity Value	Your Reported Value	Acceptance (Y =Yes, N =No)	Your Payoff (Points)
1				
2				
3				
4				
5				

Receiver #_____ (Enter your participant number)

Feedback Sheet (Receiver)

Round	Sender's Reported Value	Your Own Estimate	Accept/ Reject the Sender's Report	Your Payoff (Points)
1				
2				
3				
4				
5				

Task Two

You are designated the role of **Predictor** in this task, and your role is to predict the value of a commodity.

This is an individual experiment and you are not paired with anyone. In a few minutes, you will participate in a five-round experiment. At the beginning of each round, you will be presented with a scenario from the first task of the experiment. All scenarios are obtained from previous sessions of the same experiment.

The Actual Commodity Value

- Similar to the first task, the actual commodity value is the sum of two numbers randomly generated from a specified range of integers. We will call these two numbers Integer I and Integer II. Each number will be generated from integers ranging from 0 to 50. The midpoint of the range is 25. All the integers within that range (i.e. 0, 1, 2, ..., 48, 49, 50) are equally likely to be chosen.
- The actual commodity value (the sum of Integer I and Integer II) can take any integer value from 0 to 100 Liras.
- The actual commodity value will be determined at the beginning of each round. So the actual commodity value changes in each round.

Sender and Receiver

As you have seen in the first task of the experiment, the Receiver's task was to estimate the commodity value while the Sender's task was to report the commodity value to the Receiver. The Sender was informed of Integer I and Integer II and, thus, knew the actual commodity value. The Receiver was informed of Integer I and received a report from the Sender. The Receiver might either accept the Sender's reported value and use it as the final estimate or reject the Sender's reported value and use his own estimate as the final estimate. Their payoffs were as described in the instructions of task one.

Your Task

(1) Form & Information Distribution

- 1.1 You will receive an answer sheet (as shown on page 130).
- 1.2 You will be presented with information from an interaction between a Receiver and a Sender. You will be informed of Integer I, the Sender's reported value, and the Receiver's own estimate.

(2) Predictor's Actions

- 2.1 You will have 1 minute to answer two questions.
- 2.2. First, predict which value, the Sender's reported value or the Receiver's own estimate, is closer to the commodity value. Put *S* if you think that the Sender's reported value is closer to the actual commodity value and *R* otherwise. **This is your first prediction.**
- 2.3 Second, predict the commodity value from the given information. **This is your second prediction.** You can put any integer from 0 to 100.
- 2.4 When you finish, please put raise your hand. The experimenter will collect the answer sheet from you.

2.5 You earn money (in Lira) based on both predictions (explained below).

(3) Feedback

3.1 No feedback is given to you.

3.2 This task is repeated for five rounds.

(4) Accumulated Points

4.1 After the 5th round is done, the experimenter will randomly select an integer between 1 to 5, denoted i . Your accumulated Liras for this task will be the Liras you received in the i^{th} round.

4.2 Please wait patiently until the experimenter asks you to complete a post-experiment survey.

(5) Cash Award

5.1 While you are completing the post-experiment questionnaire, the assistant will calculate your total monetary payoff, and pay you in cash (rounded to the nearest whole dollar).

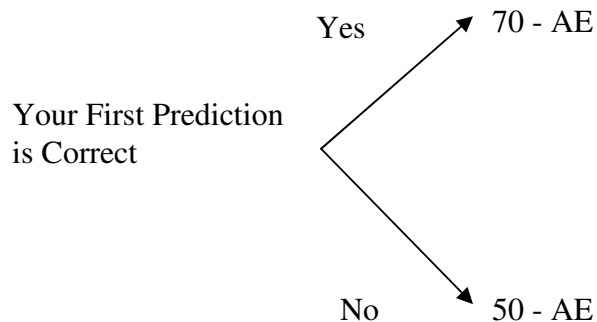
5.2 Your total monetary payoff includes your on-time arrival fee and the conversion of your Liras from the two experiment tasks.

Payoff (Liras)

- The accumulated Liras are based on (1) whether your first prediction is correct and (2) your absolute estimation error (AE), computed as follows.

$$AE = |\text{Second Prediction} - \text{Actual Commodity Value}|$$

- The Predictor accumulates points according to the following payoff tree:



Example

You are informed that Integer I is 30, the Sender's reported value is 62 Liras, and the Receiver's own estimate is 51 Liras. You predict that (1) the Sender's reported value is closer to the actual commodity value, and (2) the actual commodity value is 58 Liras. If the actual value of the commodity is 60 Liras, your answer to the first question is correct and your absolute estimation error (AE) is $|58 - 60| = 2$ Liras. Therefore, total money you receive from this round is $70 - 2 = 68$ Liras.

Round #_____

Predictor _____ (Enter your participant number)

Information

Integer I = 30

Integer II = ?

Commodity Value = 30 + ?

Sender's Reported Value = 62

Receiver's Estimate = 51

Answer Sheet

First Prediction Sender's Reported Value (<i>S</i>)/ Receiver's Own Estimate (<i>R</i>)	Second Prediction (Commodity Value in Lira)

APPENDIX B

CALCULATIONS FOR GAME-THEORETIC EQUILIBRIUMS OF THE AUDITOR-MANAGER TASK

Because the task is a dynamic game of complete but imperfect information, I solve for a perfect Bayesian equilibrium, which is a refinement of Nash equilibrium in a game of imperfect information. The detailed steps of the equilibrium calculations are as follows:

First, I use backward induction, starting with Player 2 (the auditor), to find subgame perfect equilibriums. Let β = the probability that the manager's reported value contains an error between -15 and 10. For the auditor, the expected payoff from accepting the manager's report is $[\beta \times 50 + (1 - \beta) \times 10] = 10 + (\beta \times 40)$. When the auditor rejects the manager's report, he/she receives a payoff of 40 if his/her estimate contains an error between -15 and 10, or nothing otherwise. As shown in Table 1, the auditor's best guess for the commodity value, irrespective of the manager's reported value, is between 20 and 35, yielding a success rate of 51%. Hence, the expected payoff from rejecting the manager report is $[51\% \times 40 + (1 - 51\%) \times 0] = 22$.

The auditor is indifferent from accepting or rejecting the manager's report if $10 + (\beta \times 40) = 22$ or $\beta = 26\%$. Let α = the probability that the auditor accepts the manager's report. The auditor's best responses can be summarized as:

1. If $\beta = 26\%$, the auditor is indifferent between accepting or rejecting the manager's report ($\alpha = 0.5$).
2. If $\beta > 26\%$, the auditor chooses to accept the manager's report ($\alpha = 1$).
3. If $\beta < 26\%$, the auditor chooses to reject the manager's report ($\alpha = 0$).

Next, I consider the manager's payoff. The expected payoff when the manager reports a value of R is $[\alpha \times R + (1 - \alpha) \times \theta V]$, where $\theta V = 60\%$ of the commodity value.

Given the auditor's best responses, the manager's expected payoff becomes:

1. When $\alpha = 0.5$ ($\beta = 26\%$), the manager's expected payoff = $[50\% \times R + (1 - 50\%) \times \theta V] = 0.5R + 0.5\theta V$.
2. When $\alpha = 1$ ($\beta > 26\%$), the manager's expected payoff = $[100\% \times R + (1 - 100\%) \times \theta V] = R$.
3. When $\alpha = 0$ ($\beta < 26\%$), the manager's expected payoff = $[0\% \times R + (1 - 0\%) \times \theta V] = \theta V$.

The two conditions required for perfect Bayesian equilibrium include consistent belief and sequential rationality. In this setting, the two conditions are translated into:

1. The auditor belief (p) about the manager's action (whether the manager's report contains a within-range error) in the equilibrium is consistent with the manager's chosen strategy: $p(-15 \leq R - V \leq 10) = \beta$.
2. Given this belief of the auditor, the manager chooses the optimal strategy that maximizes his/her payoff.

Since the manager's reported value may affect how the auditor forms the belief, $p(-15 \leq R - V \leq 10)$, the manager chooses the highest R that makes the auditor's belief consistent with the manager's strategy (β). Now, we can specify three subgame perfect Nash equilibriums:

1. The manager chooses the strategy (β) to include a within-range error in the report exactly 26% of the time. To maximize his/her payoff, he/she picks the

highest R that makes $p(-15 \leq R - V \leq 10) = \beta = 26\%$. Given such belief, the auditor is indifferent from accepting or rejecting the manager's report.

2. The manager chooses the strategy (β) to include a within-range error in the report greater than 26% of the time. To maximize his/her payoff, he/she picks the highest R that makes $p(-15 \leq R - V \leq 10) = \beta > 26\%$. Given such belief, the auditor chooses to accept the manager's report.
3. The manager chooses the strategy (β) to include a within-range error in the report less than 26% of the time. To maximize his/her payoff, he/she picks any R that makes $p(-15 \leq R - V \leq 10) = \beta < 26\%$ (because his payoff, θV , does not increase with R). Given such belief, the auditor chooses to reject the manager's report.

From the above three subgame Nash perfect equilibriums, the third one is the least likely to be the perfect Bayesian Equilibrium when $\theta = 60\%$. From the sequential rationality condition, the manager must prefer receiving a payoff of θV than R . Let us consider the extreme case (θV is maximum) when $V = 50 + 50 = 100$, so $\theta V = 60$. In this case, θV is preferred by the manager only if $R \geq 60$ causes the auditor to form the belief $p(-15 \leq R - V \leq 10)$ of less than 26%. Nevertheless, if the auditor's belief is strictly based on the uniform distribution (see Table 1), any reported value up to 97 would lead the auditor to form a belief $p(-15 \leq R - V \leq 10)$ of greater than 26%.

Thus, the perfect Bayesian equilibrium should be between the first and second subgame perfect Nash equilibriums. That is, the auditor believes that there is a probability no less than 26% that the manager's report contains the within-range error and given such belief, the manager chooses a reported value containing the within-range

error with a probability of no less than 26%. As a result, the manager chooses the highest R that makes the auditor's belief consistent with the manager's strategy. If the auditor forms such belief purely by the probability associated with the uniform distribution (see Table 1), the manager should always report $R = \text{the publicly known integer} + 47$. The reported value induces the auditor's belief $p(-15 \leq R - V \leq 10) = 27\%$, so the auditor accepts the report, consistent with the second subgame perfect Nash equilibrium.⁴²

⁴² In the main study (Chapter 6), θV changes to 80% and 20% of the commodity value for the aggressive and conservative manager groups, respectively. However, the change does not alter the game theoretic equilibrium because θV does not affect the manager's payoff in the equilibrium.

APPENDIX C

TEN-PAIRED LOTTERY-CHOICE DECISIONS

Your decision sheet (in the following page) shows ten decisions listed on the left. Each decision is a paired choice between "Option J" and "Option K." You will make ten choices and record these in the final column, but only one of them will be used in the end to determine your earnings. Before you start making your ten choices, please let me explain how these choices will affect your earnings for this part of the experiment.

There are two boxes in front of the room that will be used to determine payoffs; each box contains ten pieces of paper numbered from 1 to 10. At the end of today's experiment, I will randomly draw a piece of paper from each box. The first box is to select one of the ten decisions to be used, and the second box is to determine what your payoff is for the option you chose, J or K, for the particular decision selected. Even though you will make ten decisions, only one of these will end up affecting your earnings, but you will not know in advance which decision will be used. Obviously, each decision has an equal chance of being used in the end.

Now, please look at Decision 1 at the top. Option J pays \$4 if I draw number 1 from the second box, and it pays \$3.20 if the draw is 2-10. Option K yields \$7.70 if the draw is 1, and it pays \$0.20 if the draw is 2-10. The other Decisions are similar, except that as you move down the table, the chances of the higher payoff for each option increase. In fact, for Decision 10 in the bottom row, the draw will not be needed since each option pays the highest payoff for sure, so your choice for Decision 10 is between \$4 and \$7.70.

To summarize, you will make ten choices: for each decision row you will have to choose between Option J and Option K. You may choose J for some decision rows and K for other rows, and you may change your decisions and make them in any order. After you finish, I will collect your decision sheet and keep it until the end of today's experiment. When we finish all other tasks, I will draw a number from each of the two boxes. The first number determines which Decision is going to count and the second number determines your earnings for this part.

So now please look at the empty boxes on the right side of the record sheet. You will have to write a decision, J or K in each of these boxes.

Are there any questions? Now you may begin making your choices. Please do not talk with anyone while we are doing this; raise your hand if you have a question.

Decision Sheet

Decision	Option J	Option K	Your Choice (J or K)
1	1/10 of \$4.00, 9/10 of \$3.20	1/10 of \$7.70, 9/10 of \$0.20	
2	2/10 of \$4.00, 8/10 of \$3.20	2/10 of \$7.70, 8/10 of \$0.20	
3	3/10 of \$4.00, 7/10 of \$3.20	3/10 of \$7.70, 7/10 of \$0.20	
4	4/10 of \$4.00, 6/10 of \$3.20	4/10 of \$7.70, 6/10 of \$0.20	
5	5/10 of \$4.00, 5/10 of \$3.20	5/10 of \$7.70, 5/10 of \$0.20	
6	6/10 of \$4.00, 4/10 of \$3.20	6/10 of \$7.70, 4/10 of \$0.20	
7	7/10 of \$4.00, 3/10 of \$3.20	7/10 of \$7.70, 3/10 of \$0.20	
8	8/10 of \$4.00, 2/10 of \$3.20	8/10 of \$7.70, 2/10 of \$0.20	
9	9/10 of \$4.00, 1/10 of \$3.20	9/10 of \$7.70, 1/10 of \$0.20	
10	10/10 of \$4.00, 0/10 of \$3.20	10/10 of \$7.70, 0/10 of \$0.20	

APPENDIX D

EXPERIMENTAL INSTRUCTIONS (MAIN STUDY)

Welcome to the experiment! In this experiment, you will have the opportunity to accumulate money in Lira, an experimental currency, by performing two simple tasks. At the end of the experiment, your Liras obtained from all tasks will be tallied and you will be paid \$1 for every 8 Liras earned. You will be paid privately in cash at the end of the experiment. During the experiment, please do not talk, exclaim, or communicate with other participants. If you have any question, please raise your hand and the experimenter will assist you.

During the experiment, you will be identified only by a participant number, which will be given to you later. All decisions you make in the experiment will be anonymous, and no one else, including the experimenter, can trace them back to you.

Task One

You will take the role of Sender or Receiver. Your role will be announced after the instructions are completed. The task is repeated for four rounds and your role will be the same in each round. You will be paired with a person in the other role. You will be paired with a different person in each round. You will not be told who these people are either during or after the experiment.

In this task, there is a commodity of which actual value is determined in Lira.

The Actual Commodity Value

- The actual commodity value is the sum of two numbers randomly generated from a specified range of integers. We will call these two numbers Integer I and Integer II. Each number will be generated from integers ranging from 0 to 50. The midpoint of the range is 25. All the integers within that range (i.e. 0, 1, 2, ..., 48, 49, 50) are equally likely to be chosen.
- The actual commodity value (the sum of Integer I and Integer II) can take any integer value from 0 to 100 Liras.
- The actual commodity value will be determined at the beginning of each round. So the actual commodity value changes in each round.

The Role of Sender

Sender will give advice to the Receiver regarding how to estimate the commodity value. The Sender will submit the reported value to the Receiver using a communication sheet (as shown on page 145).

Game Rules

- The Sender will be informed of Integer I.
- Integer II remains unknown to the Sender. However, the Sender will be informed of the interval that contains Integer II. This interval includes 15 integers and each integer has an equal chance of being the true value of Integer II.
- The Sender can report any value from 0 to 100. The Sender's reported value will be passed to the Receiver. The Receiver may either accept or reject the Sender's reported value.
- At the end of each round, the Sender will be informed of the points accumulated in that round via a feedback sheet (as shown on page 146).

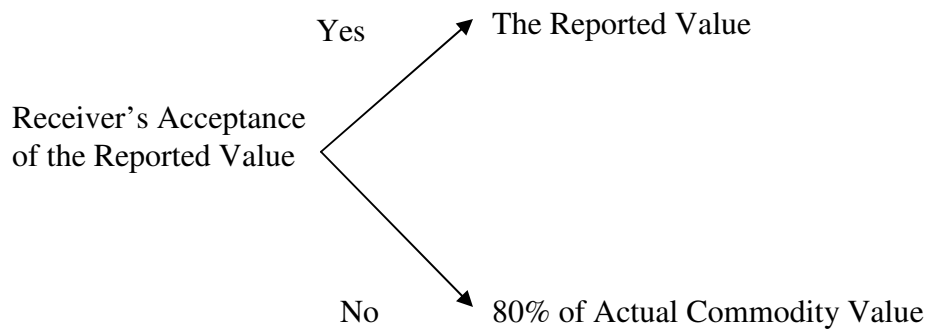
Sender Type

- The Sender will be either Type X or Type Y. The Sender's type does not change throughout the experiment.
- There is a 50% chance that the Sender will be Type X or Type Y. All Senders in this room will be the same type.
- The Sender type will be announced to everyone in this room later.

Payoff (Points)

The Sender payoff depends on his/her type. Type X and Type Y Senders accumulate points according to the following payoff trees:

Payoff for Type X Sender



1. If the Receiver accepts the Type X Sender's reported value, the Type X Sender will receive money (in Lira) equal to the reported value, irrespective of the actual commodity value.

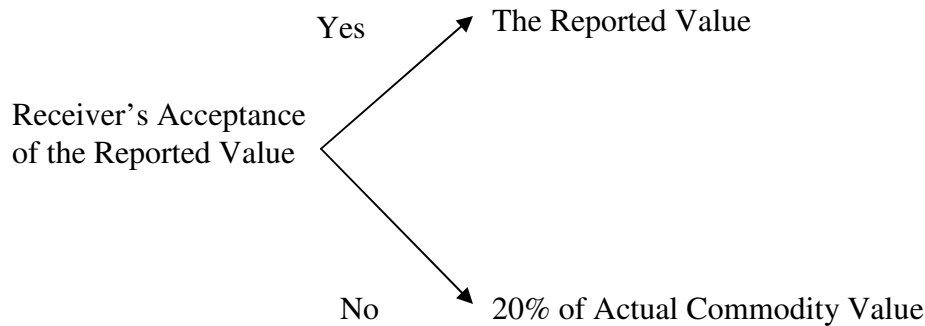
2. If the Receiver does not accept the Type X Sender's reported value, the Type X Sender will receive money (in Lira) equal to 80% of the actual commodity value.

Example

Suppose the actual commodity value is 60 and the **Type A** Sender's reported value of the commodity is 68 Liras.

1. If the Sender's reported value is accepted by the Receiver, the Sender's payoff for the round is 68 Liras.
2. If the Sender's reported value is not accepted by the Receiver, the Sender's payoff for the round is $80\% * 60 = 48$ Liras.

Payoff for Type Y Sender



1. If the Receiver accepts the Type Y Sender's reported value, the Type Y Sender will receive money (in Lira) equal to the reported value, irrespective of the actual commodity value.
2. If the Receiver does not accept the Type Y Sender's reported value, the Type Y Sender will receive money (in Lira) equal to 20% of the actual commodity value.

Example

Suppose the actual commodity value is 60 and the **Type Y** Sender's reported value of the commodity is 68 Liras.

1. If the Sender's reported value is accepted by the Receiver, the Sender's payoff for the round is 68 Liras.
2. If the Sender's reported value is not accepted by the Receiver, the Sender's payoff for the round is $20\% * 60 = 12$ Liras.

The Role of Receiver

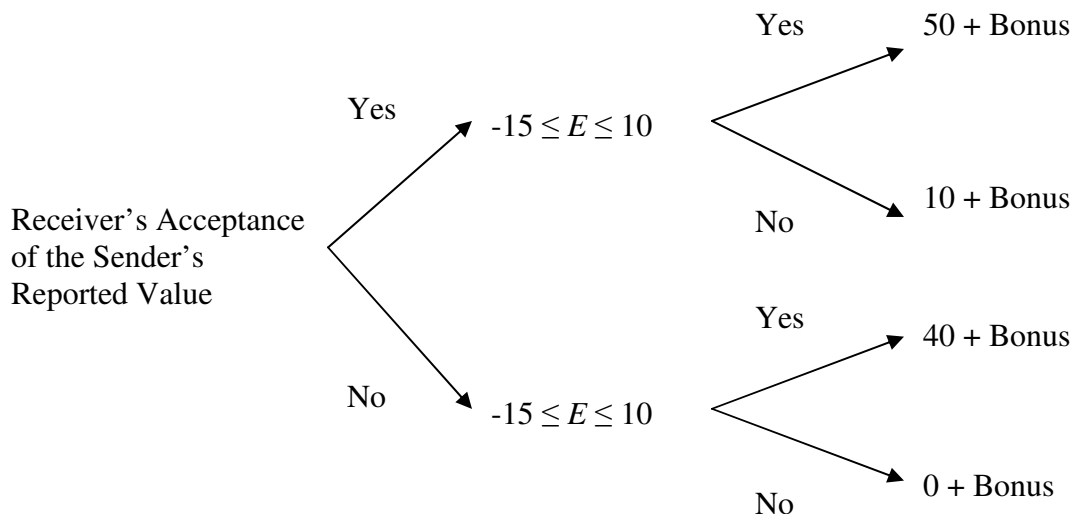
The role of Receiver is to estimate the commodity value in Lira.

Game Rules

- The Receiver will be informed of Integer I but Integer II remains unknown to the Receiver. Unlike the Sender, the Receiver will not be informed of the 15 integer-interval that contains the true value of Integer II.
- The Receiver will get a communication sheet from the Sender (as shown on page 145), who is free to report any value from 0 to 100, regardless of the actual commodity value. The communication sheet will contain the Sender's reported value.
- After receiving the communication sheet, the Receiver makes **two** decisions:
 - (1) The Receiver will record his/her own estimate of the commodity value. This estimate will be used to calculate bonus points, which are not revealed to the Receiver. The closer the estimate is to the actual commodity value, the more bonus points the Receiver will earn for the round.
 - (2) The Receiver chooses whether to accept the Sender's reported value or not. This decision will determine the Receiver's **final estimate** of commodity value. If the Receiver accepts the Sender's reported value, the reported value will be used as the Receiver's final estimate. If the Receiver does not accept the Sender's reported value, the Receiver's own estimate will be used as the final estimate.
- At the end of each round, the Receiver will be informed of the points accumulated in that round (excluding the bonus) via a feedback sheet (as shown on page 147).

Pavoff (Points)

- Estimation Error (E) = Final Estimate – Actual Commodity Value
- The Receiver accumulates points according to the following payoff tree:



- Bonus = $(100 - |\text{Receiver's Estimate} - \text{Actual Commodity Value}|)/10$.

Example 1

Suppose Integer I is 25 and the Sender's reported value is 68 Liras. The Receiver records his or her own estimate of 50 Liras. Then the Receiver rejects the Sender's reported value so the Receiver's own estimate of 50 Liras becomes the final estimate.

1. If the commodity's actual value is 60 Liras, the Receiver's estimate error (E) is $50 - 60 = -10$. Because E falls within the range of $[-15, 10]$, the Receiver's payoff for the round is 40 Liras plus the bonus.
2. The bonus is computed as $(100 - |50-60|)/10 = 9$ Liras.
3. The Receiver earns 49 Liras for the round $(40 + 9)$.

Example 2

Assume the same set of facts from example 1, except that the commodity's actual value is 35 Liras.

1. Now the Receiver's estimate error (E) is $50 - 35 = 15$. Because E falls outside the range of $[-15, 10]$, the Receiver's payoff for the round is 0 Lira plus the bonus.
2. The bonus is computed as $(100 - |50-35|)/10 = 8.5$ Liras.
3. The Receiver earns 8.5 Liras for the round $(0 + 8.5)$.

Determination of Your Role

Now, please take one of the cards that the experimenter is passing out. On the card, the letter (R or S) indicates which player (Receiver or Sender) you will be in this task, and the number is your participant number. Please keep the card only to yourself. Do not show it to anyone else.

The type of Sender in this room is Type X (or Y).

(For Control Group only: The experimenter randomly selected 20% of participants who will not have to actually play this game and you are one of them. However, you will have opportunity to accumulate Liras by completing the following quiz.)

Experimental Procedures

- (1) Form Distribution
 - 1.1 Sender will be given a communication sheet, a feedback sheet and an envelope.
 - 1.2 Receiver will be given a feedback sheet and an envelope.
- (2) Information Distribution
 - 2.1 The Sender will be informed of Integer I and the possible range of Integer II.
 - 2.2 The Receiver will be informed of Integer I.
- (3) Sender's Actions
 - 3.1 The Sender has 30 seconds to indicate reported value on the top section of the communication sheet. The reported value may be any integer from 0 to 100.
 - 3.2 When you finish, please put your communication sheet and feedback sheet in the envelope and raise your hand. The experimenter will collect the envelope from you.
- (4) Receiver's Actions
 - 4.1 The Receiver will be given a communication sheet. The top section of the communication sheet contains the Sender's reported value for the round, and the bottom section is for the Receiver's decisions. You will have 30 seconds to answer two questions.
 - 4.2 Think about your own estimate of the commodity value and fill in the bottom of the communication sheet. Your estimate may be any integer from 0 to 100.
 - 4.3 Check (a) if you want to accept the Sender's reported value and use it as the final estimate, or (b) if you reject the reported value and want to use your own estimate as the final estimate.
 - 4.4 When you finish, please put your communication sheet in the envelope and raise your hand. The experimenter will collect the envelope from you.
- (5) Feedback
 - 5.1 All envelopes will be given to an assistant, who has minimal knowledge of the experiment. The assistant will calculate your payoff for the round, complete your feedback sheet, and put your feedback sheet back in the envelope. However, the Receiver's bonus points will not be revealed.
 - 5.2 The envelopes will be passed to the experimenter and the experimenter will return your envelope to you.
 - 5.3 You will have a moment to review your feedback sheet before the next round of the experiment begins. This task is repeated for four rounds.
- (6) Accumulated Liras
 - 6.1 After the 4th round is done, the experimenter will randomly select an integer between 1 to 4, denoted i . You will receive from this task the Liras you

received in the i^{th} round. However, you will not be informed of your accumulated Liras until the end of the experiment.

6.2 Please wait patiently until the experimenter gives you instructions for your next task.

Communication Sheet

Round #_____

.....

Sender #_____

REPORTED VALUE

The Sender's reported value of the commodity is
_____ Liras.

.....

Receiver #_____

RECEIVER'S DECISION

I. The Receiver's own estimate of the commodity
value is _____ Liras.

II. Choose only one option below (check the
appropriate space)

____ (a) Accept the Sender's reported value and
use it as my final estimate of the
commodity value

____ (b) Reject the Sender's reported value and use
my own estimate of the commodity value
as the final estimate.

Sender #_____ (Enter your participant number)

Feedback Sheet (Sender)

Round	The Actual Commodity Value	Your Reported Value	Acceptance (Y =Yes, N =No)	Your Payoff (Liras)
1				
2				
3				
4				

Receiver #_____ (Enter your participant number)

Feedback Sheet (Receiver)

Round	Sender's Reported Value	Your Own Estimate	Accept/ Reject the Sender's Report	Your Payoff (Liras)
1				
2				
3				
4				

Task Two

You are designated the role of **Predictor** in this task, and your role is to predict the value of a commodity.

This is an individual experiment and you are not paired with anyone. In a few minutes, you will participate in a five-round experiment. At the beginning of each round, you will be presented with a scenario from the first task of the experiment **when the Receiver rejects the Sender's reported value**. All scenarios are obtained from other sessions of the same experiment.

The Actual Commodity Value

- Similar to the first task, the actual commodity value is the sum of two numbers randomly generated from a specified range of integers. We will call these two numbers Integer I and Integer II. Each number will be generated from integers ranging from 0 to 50. The midpoint of the range is 25. All the integers within that range (i.e. 0, 1, 2, ..., 48, 49, 50) are equally likely to be chosen.
- The actual commodity value (the sum of Integer I and Integer II) can take any integer value from 0 to 100 Liras.
- The actual commodity value will be determined at the beginning of each round. So the actual commodity value changes in each round.

Sender and Receiver

As you have seen in the first task of the experiment, the Receiver's task was to estimate the commodity value while the Sender's task was to report the commodity value to the Receiver. The Sender was informed of Integer I and the 15 integer-interval that contains Integer II. The Receiver was informed of Integer I and received a report from the Sender. The Receiver might either accept the Sender's reported value and use it as the final estimate or reject the Sender's reported value and use his/her own estimate as the final estimate. Their payoffs were as described in the instructions of task one. However, keep in mind that the Sender can be either Type X or Y. You will not be informed of the Sender's type in this task.

Your Task

- (1) Form & Information Distribution
 - 1.1 You will receive an answer sheet (as shown on page 151).
 - 1.2 You will be presented with information from an interaction between a Receiver and Sender. You will be informed of Integer I, the Sender's reported value, and the Receiver's own estimate. However, the Sender type will be unknown to you.
- (2) Predictor's Actions
 - 2.1 You will have 1 minute to answer two questions.
 - 2.2. First, predict the actual commodity from the given information. You can put any integer from 0 to 100.
 - 2.3 Second, indicate your agreement with the Receiver's decision to reject the Sender's value (from 0 to 100%). For example, if you are 80% in

agreement with the Receiver's decision to reject the Sender's value, then put 80%.

2.4 When you finish, please raise your hand. The experimenter will collect the answer sheet from you.

2.5 Your payoffs are based on both of your answers (explained below).

(3) Feedback

3.1 No feedback is given to you.

3.2 This task is repeated for six rounds.

(4) Accumulated Liras

4.1 After the 6th round is done, the experimenter will randomly select an integer between 1 to 6, denoted i . You will obtain from this task the Liras you received in the i^{th} round.

4.2 Please wait patiently until the experimenter asks you to complete a post-experiment survey.

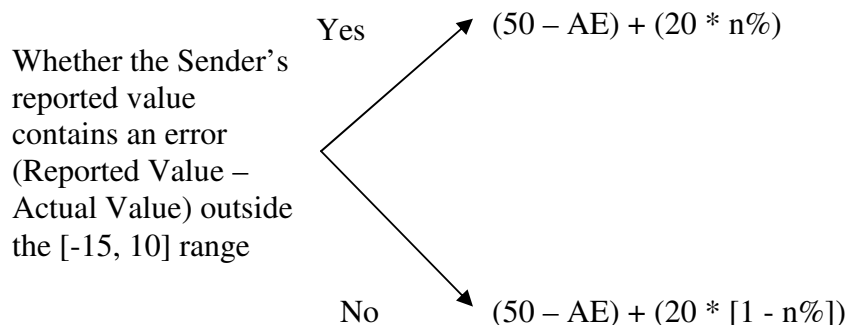
(5) Cash Award

5.1 While you are completing the post-experiment questionnaire, the assistant will calculate your total monetary payoff, and pay you in cash (rounded to the nearest whole dollar).

5.2 Your total monetary payoff includes that of your lottery choices and the conversion of your obtained Liras from the two experiment tasks.

Payoff (Liras)

- The points accumulated are based on (1) your absolute estimation error (AE) and (2) your agreement ($n\%$) with the Receiver's decision to reject the Sender's reported value.
- First, $AE = |\text{Your Prediction of Commodity Value} - \text{Actual Commodity Value}|$.
- The Predictor accumulates points according to the following payoff tree:



Example

You are informed that Integer I is 30, the Sender's reported value is 62 Liras, and the Receiver's own estimate is 51 Liras. First, you predict that the actual commodity value is 58 Liras. Second, you indicate that you are 40% in agreement with the Receiver's decision to reject the Sender's reported value. If the actual value of the commodity is 56 Liras, the Sender's reported value contains an error of 6 Liras ($62 - 56$), which is still within the $[-15, 10]$. In addition, your absolute estimation error (AE) is $|58 - 56| = 2$ Liras. Therefore, total payoffs you receive from this round are $(50 - 2) + (20 * [1 - 40\%]) = 48 + 12 = 60$ points.

Round #_____

Predictor _____ (Enter your participant number)

Information

Integer I = 30

Integer II = ?

Commodity Value = 30 + ?

Sender's Reported Value = 62

Receiver's Estimate = 51

Answer Sheet

1. Your estimate of the commodity value is _____ Liras (put a whole number from 0 to 100).
2. Your agreement with the Receiver's decision to reject the Sender's reported value is _____% (put a whole number from 0 to 100).

Auditor-Manager Incentives Quiz

Because your knowledge of Task One is important for Task Two, please take a few minutes to answer the following questions. The questions are about payoffs of the Receiver and Sender in Task One.

Put T (True) or F (False) in front of each statement. You will earn 4 Liras for each correct answer.

- ☐ 1. If a Sender's report was rejected, he would receive higher earnings if he was Type Y, relative to Type X.
- ☐ 2. As long as the Sender's report is accepted by the Receiver, the Sender's earnings increase with the reported value, regardless of the Sender's type.
- ☐ 3. A Receiver should reject the Sender's report if the Receiver suspects that the reported value contains an error outside the $[-15, 10]$ range.

APPENDIX E

POST-EXPERIMENT QUESTIONNAIRE (PEQ)

This questionnaire is designed to collect information to help the researchers understand decisions made throughout the experiment. Please be assured that you cannot be personally identified from your responses.

1. Please enter your participant number: _____

2-a. What is your standing in your university? (e.g., undergraduate, graduate) _____

2-b. What is your year of study (e.g., 1st, 2nd, 3rd, 4th)? _____

2-c. What is your major area of study (e.g., accounting, ISyE)? _____

3. What is your gender? (please check one) male _____ female _____

4. Describe in your own words briefly what you did and how you came up with answers in the **first** task of the experiment.

5. What is the type of manager in your session during the **first** task of the Experiment? (e.g., X, Y) _____

6. In the **first** task of the experiment, were you concerned about the usefulness of your report to Receiver? That is, in helping Receiver estimate the commodity value? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

7. In the **first** task of the experiment, did you consider the potential effect of your report on Receiver's earnings? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

8. In general, do you think the Receiver should rely on the Type X Sender's reported value (including all participants taking this role)? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

9. In general, do you think the Receiver should rely on the Type Y Sender's reported value (including all participants taking this role)? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

10. Describe in your own words briefly what you did and how you came up with answers in the **second** task of the experiment.

11. In the **second** task of the experiment, how do you compare the Receiver's own estimate of the commodity value to the actual commodity value? (please circle one)

Much
Lower 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Accurate
Higher

12. In the **second** task of the experiment, how do you compare the Sender's reported value to the actual commodity value? (please circle one)

Much
Lower 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Accurate
Higher

13. In general, do you think that experience as a Receiver helps increase performance in the second task? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

14. In general, do you think that experience as a Type X Sender helps increase performance in the second task? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

15. In general, do you think that experience as a Type Y Sender helps increase performance in the second task? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

16. In general, how do you rate the trustworthiness of Type X Sender? (please circle one)

Very
Low 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
High

17. In general, how do you rate the trustworthiness of Type Y Sender? (please circle one)

Very
Low 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
High

18. In general, how do you rate the trustworthiness of Receiver? (please circle one)

Very
Low 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
High

19. In general, how do you rate the competence of Type X Sender in estimating the commodity value? (please circle one)

Very
Low 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
High

20. In general, how do you rate the competence of Type Y Sender in estimating the commodity value? (please circle one)

Very
Low 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
High

21. In general, how do you rate the competence of Receiver in estimating the commodity value? (please circle one)

Very
Low 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
High

22. In the **second** task of the experiment, how much do you consider Receiver's perspective before making decisions? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

23. In the **second** task of the experiment, how much do you consider Type X Sender's perspective before making decisions? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

24. In the **second** task of the experiment, how much do you consider Type Y Sender's perspective before making decisions? (please circle one)

Not
At all 1-----2-----3-----4-----5-----6-----7-----8-----9-----10-----11 Very
Much

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